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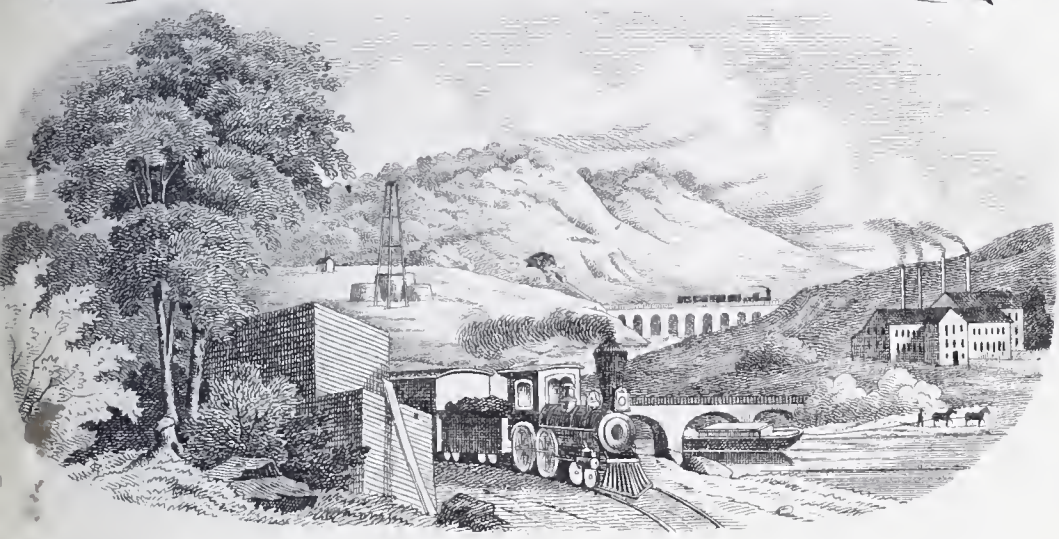
ANNUAL REPORT

OF THE

Secretary of Internal Affairs

OF THE

COMMONWEALTH OF PENNSYLVANIA



PART III.

INDUSTRIAL STATISTICS.

VOL. IX

1880-81.

HARRISBURG
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1882.

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REPORT

OF THE

BUREAU OF INDUSTRIAL STATISTICS.

DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS,
HARRISBURG, *June 5, 1882.*

Honorable AARON K. DUNKEL,
Secretary of Internal Affairs:

SIR: I herewith have the honor to present the ninth annual report of the Bureau of Industrial Statistics, and the third under your official term as Secretary of Internal Affairs.

The following tables are an exhibit of the number of blanks issued and returned, and which are embodied in the present report:

INDUSTRIES.

INDUSTRIES.	Number issued.	Number returned.	INDUSTRIES.	Number issued.	Number returned.
Agricultural Implements,	24	11	Firearms,	7	3
Air brakes,	1	1	Fire brick,	32	20
Babbitt metals,	3	1	Furniture,	76	26
Belting and hose, (leather,)	15	6	Glass, (window,)	32	24
Boat builders,	3	1	Glass, (flint,)	43	37
Boots and shoes,	178	86	Glass, (green,)	15	11
Boxes, (cigar, paper, &c.,)	13	7	Glass, (molds and presses,)	4	4
Brick-makers,	20	9	Hardware,	12	3
Bridge building,	7	5	Iron blast furnaces,	176	150
Car building,	28	13	Iron bloomaries,	37	32
Carriages and wagons,	88	32	Iron boiler works,	34	9
Coal mining, (anthracite,)	413	389	Iron bolt and nut works,	12	6
Coal mining, (bituminous,)	501	408	Iron chains,	7	3
Cooperage,	19	10	Iron fences,	11	2
Copper,	3	3	Iron forges,	15	7
Cordage,	10	5	Iron foundries and machine shops,	473	228
Crucibles, (black lead,)	7	2	Iron, (galvanized,)	8	3
Cutlery,	1	1			

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INDUSTRIES—*Continued.*

INDUSTRIES.	Number issued.	Number returned.	INDUSTRIES.	Number issued.	Number returned.
Iron hinges,	3	1	Screens,	4	2
Iron lightning rods,	4	2	Shoe blacking,	7	3
Iron rolling-mills,	135	106	Show cases,	6	3
Iron roof frames, &c.,	3	1	Slate,	20	5
Iron spikes and rivets,	4	2	Smut-brush machine,	1	1
Iron taeks,	1		Smoke works,	9	8
Iron tube works,	17	10	Steel, (Bessemer.)	7	4
Iron wire works,	10	3	Steel (crucible cast, &c.,)	59	26
Lasts,	9	5	Tanneries,	967	457
Lumber,	110	51	Tanneries—calf, kid,	11	7
Marble and granite works,	27	9	Tanneries—sheep skin,	16	8
Marbleized mantle manufac'y	8	2	Terra cotta,	10	5
Matches,	6	3	Textile fabrics, (carpets,)	149	117
Morocco,	33	16	Textile fabrics, (cotton,)	73	65
Needles,	1	1	Textile fabrics, (cotton and woolen,)	101	74
Oars,	1	1	Textile fabrics, (hosiery and knit goods,)	140	116
Oil-cloth manufactory,	1	1	Textile fabrics (silk and silk mixed goods,)	51	41
Paint works,	24	12	Textile fabrics, (woolen,)	84	65
Paper mills,	44	24	Textile fabrics, (wool hats, &c.,)	24	17
Patterns and molds,	5	3	Textile fabrics, (yarns,)	138	110
Planing-mills, &c.,	124	53	Textile fabrics, (dyeing bleaching, finishing, and printing,)	35	14
Plumbago,	1	1	Tools,	8	3
Plumbers' materials,	3	2	Toys,	2	1
Powder-mills,	6	4	Wooden ware,	14	9
Printing and binding,	4	2			
Pumps,	11	5			
Railroads,	144	110			
Saddle and harness,	42	24			
Safes and locks,	10	4			
Sash and doors,	25	16			
Saw-mills,	335	158			
Scales,	4		Total,	5,429	3,345

OCCUPATIONS.

OCCUPATIONS.	Number issued.	Number returned.	OCCUPATIONS.	Number issued.	Number returned.
Blacksmiths,	30	13	Caulkers,	2	1
Bricklayers,	6		Cigar-makers,	5	5
Brick-makers,	5	1	Coopers,	3	
Cabinet-makers,	10	5	Dyers,	2	1
Car builders,	3	2	Engineers,	16	8
Car inspectors,	2	2	Firemen,	4	2
Carders and spinners,	5		Glass-blowers,	8	2
Carpenters,	38	18	Glass, flint dressers,	2	
Carriage trimmers,	4		Glass-workers,	3	

OCCUPATIONS—*Continued.*

Occupations.	Number issued.	Number returned.	Occupations.	Number issued.	Number returned.
Harness-makers,	7	5	Miners, iron ore,	3	1
Iron and steel workers,—			Molders,	14	3
Iron and blast furnace employés,	7	3	Painters,	17	10
forgemen,	4		Pattern-makers,	5	2
refiners,	1		Plasterers,	12	6
puddlers,	52	27	Printers,	6	
helpers,	5	1	Sawyers,	5	3
heaters,	15	10	Shoe-makers,	14	8
rollers,	22	8	Stone cutters,	3	1
roughers,	3	2	Stone-masons,	11	6
catchers,	1		Tailors,	5	3
muck-rollers,	1	1	Tanners,	8	5
hookers,	1	1	Tinners,	9	5
nailers,	12	3	Wagon-makers,	11	4
steel-melters,	4		Weavers,	6	2
picklers,	1	1	Weavers, carpet,	2	
not designated,	35		Warpers,	3	1
Machinists,	16	5	Wheel-wrights,	6	1
Mill-wrights,	6	3	Total,	627	248
Miners, coal,	146	57			

The difficulties under which the Bureau has labored since its establishment, has, to some extent, been relieved, through the small sum appropriated by the Legislature of 1880. This is a step in the right direction, and while the sum is wholly inadequate to the wants of the Bureau, it is hoped that the precedent thus established, will be followed by such legislation as will meet all the requirements essential to comprehensive reports. The most faithful attention, and the closest application to duty, upon the part of those attached to the Bureau, can not possibly do justice to our varied and vast industries; nor can the social conditions and relations of those immediately connected with them be fairly investigated without proper legislative aid. Statistics regarding production, etc., should be demanded by law, with fixed regulations governing the time and manner of returns; they should be made direct to the Bureau, and there compiled and preserved, as a matter of record, as one year succeeds the other. Those relating to coal might be made in full to the respective mine inspectors, and by them transmitted to the Bureau. The social and economic questions that are interwoven with our progress, are matters that belong to the Bureau proper, and are questions of such vast importance, that their investigations should be not only impartial, but full and thorough.

The accomplishment of such results requires systematic effort, assisted, at times, by temporary help and pecuniary aid. This, evidently, was intended by the framers of the constitution, and is, undoubtedly, the only

way by which the Bureau can fulfill the objects of its creation. In States and countries where statistical reports are deemed valuable, they are supported by a system such as indicated, and, as a rule, the reliability of their reports are measured by the authority given, and the means expended in the performance of the work.

The statistics herein given, relating to our industries, are, we think, the most thorough and reliable that has been compiled in any previous report issued from this office. A small proportion, so far as they relate to iron and coal, are estimated; but from a personal knowledge of the business and extent of the works, we are conscious that the figures given are, in the main, accurate.

The average amount of wages paid in the production of a given ton of coal or iron, in the several recapitulations, differ somewhat from that given by those connected with the United States Bureau of Statistics. In the recapitulation of these respective industries, we have taken the total amount of tonnage given, and total amount of wages paid, and made our calculations thereon. The wages include that of all those connected with the various establishments, from the superintendents down, which is necessarily a part of the cost of labor in operating the plant, and, therefore, should be computed in the actual wage cost of production. This method makes the figures somewhat higher than those given in the estimates alluded to, which do not include all who were paid wages. We are of the opinion that the computation given in this report is the most correct.

The average wages paid employés in the various occupations, as given on pages 160 to 165, inclusive, are computed from the whole number of returns of operators to the Bureau for the years designated. Great care has been taken in their compilation, and, we believe, show a reliable record of the average wages of the industries enumerated.

An exhibit of the number of employés engaged in the different industries is given on pages 158 and 159, upon which the averages are based for 1881, which represents a wider field than any previous year. Those industries that had given only a partial report for the years left vacant, are not enumerated, because the returns, during these periods, were not sufficiently complete to make a reliable estimate.

The average retail price of groceries, etc., are compiled from information gathered throughout the several counties of the State.

It was our aim to give a complete historical sketch of all the labor troubles in our State during the last thirty years; but, after much labor, both in and outside the office, we found it impossible to gather all the data, hence our report, in that particular, is somewhat deficient. Sufficient, however, is given to show results attained in the past through "strikes," and from which all reflecting men can gather the probable end of similar struggles, should they occur in the future. As the record brings us down to the close of the year, we think it would be well that future reports should contain impartial statements of the cause, duration, and results of all "strikes" as

they occur. Facts thus gathered from passing events are calculated to stimulate the mind to active thought in an attempt to devise measures that will forever banish these ever-recurring struggles.

The laws of our State, as they relate to labor, is herewith published. One or two omissions, which occurred in the codification of last year, have been supplied, and the additional legislation of 1880 added. The demand for these laws has been so great as to not only justify, but require their re-publication with the present report.

In the midst of the imperfections of our efforts we have striven to do the best we could with the facilities afforded, and if what has been done will succeed in impressing upon the minds of our citizens the importance of the work, and the necessity of a system through which it can be thoroughly accomplished, it matters not who is commissioned to perform it, we shall be more than satisfied. The revision in the compilation of tables in the reports of the respective mine inspectors curtails not only their number, but also groups the several characteristics into a condensed, intelligent form, thus reducing their volume without impairing their value.

The Bureau is under obligations to H. M. Chance, O. B. Wright, F. P. Case, A. Stinner, D. R. Jones, Esquires, and others, for valuable aid, and also the attachés of the office. The large experience and untiring energy of Chief Clerk John O. Edwards, in connection with the work, render his services invaluable, and are entitled to special commendation here.

M. S. HUMPHREYS,
Chief of Bureau.

ANTHRACITE COAL.

The following tabulation of anthracite coal, etc., for the year ending December 31, 1881, is compiled from returns received by the Bureau, in response to the blanks containing the following inquiries: 1st. Amount of coal produced during the year, in tons. 2d. Total amount paid in wages during the year. 3d. Total number of persons employed. 4th. Total number of days in operation during the year.

NAME OF OPERATOR.	Number of collieries operated.	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Carbon County:					
Buck Mountain Coal Company,	4	188	368	$150,193 75	120,718.12
Lehigh Coal and Navigation Company,	8	216	2,981	1,132,385 53	647 176.16
E. B. Leisenring,	4	214.4	1,038		483 165.16
George H. Myers & Co.,	1	232	386	181,534 37	164.047
W. T. Carter & Co., (Coleralne,)	1	269	316		138.187
Columbia County:					
Montana Coal Company,	1	242	155	51,945 59	42,941.06
Sykes & Jones,	1	180	73	20,000 00	18,000
Daniel M. Bieber,	1	50	3		74.16
Lewis A. Riley & Co.,	2	157.2	718	174 253 23	128,187.14
Dauphin County:					
Lykens Valley Coal Company,	1	283.6	807		198,188.17
Summit Branch Railroad Company,	2	283.6	803	363,644 03	279.790.01
James Fennel,	1	213	17		2,628.05
Lackawanna County:					
Elk Hill Coal and Iron Company,	1	240	180	52 280 79	52,606.06
Roaring Brook Coal Company,	1	175	209	105 098 08	87 872 06
Filer & Livey,	1	228.3	485	130,944 64	131,520
Hillside Coal and Iron Company,	4	219.2	829	304,826 66	252,481.16
William Connell & Co.,	2	224.7	739	240,123 50	230,426.07
Fairlawn Coal Company, (Limited,)	1	256.6	162	53,665 28	58 965.15
Jones, Simpson & Co.,	1	258.5	278	106,000 00	104.997.07
O. S. Johnson & Co.,	1	250	284		130.600
John Hosie & Sons,	1	223	375	112,300 97	128,903.17
Brennan & Bridge,	1	220	59		17 838
Pennsylvania Anthracite Coal Company,	2	265.5	613		225,834
Mount Pleasant Company,	1	256	281		123.716
DELAWARE AND HUDSON CANAL COMPANY.					
Lackawanna county collieries,	12	241.5	3 652	1,179,408 13	1.377,247.19
Luzerne county collieries,	10	239	3,030	1.094,866 07	1,264.923.09
Delaware and Hudson Canal Company—Total,	22	240.5	6,682	$2 274,275 20	2,642,171.08
PENNSYLVANIA COAL COMPANY.					
Lackawanna county collieries,	4	252.7	520		167,003
Luzerne county collieries,	20	257	2 858		1,241,811
Pennsylvania Coal Company—Total,	24	254.7	3,378		1,408,814

NAME OF OPERATOR.	Number of collieries operated.	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
DELAWARE, LACKAWANNA, AND WESTERN RAILROAD COMPANY.					
Lackawanna county collieries,	16				
Luzerne county collieries,	2				
Total,	18	537.6	5,552		2,472,675
LACKAWANNA IRON AND COAL COMPANY.					
Capouse shaft,	1	213	506		276,840
Pine Brook shaft,	1	29	133		13,481
Luzerne County:					
Plymouth Coal Company,	1	245.1	179		93,173 09
Susquehanna Coal Company,	4	246.8	2,341	$881,446 53	763,650.01
Salem Coal Company,	1	280	155	60,556 13	48,000
W. G. Payne & Co.,	1	192	238		112,000
Albright Coal Company,	1	50	80		8 438
Waddell & Walter,	1	216	121	51,746 84	38 070.12
Robert S. Poole,	1	176	50	21,184 00	19,450
H. Baker Hillman,	1	245	100	62 400 00	52 000
Franklin Coal Company,	1	208.5	445		145,229
Caleb S. Maltby,	1	236	304	119 175 27	98 538
J. P. Williams & Co.,	1	100	9	1 600 00	2 500
Phœnix Coal Company,	1	147.2	135	40,272 37	32 412.19
Butler Colliery Company,	2	233	286	119 325 01	110 276
Upper Lehigh Coal Company,	2	235.5	515	282,966 32	370 683
J. Leisenring & Co.,	2	244 5	402	206,445 40	240 531.17
Pardee Brother & Co.,	2	234.2	211	125 180 08	254,754
J. C. Hayden & Co.,	3	264	444	207,316 00	205,000
Pond Creek Coal Company,	1		70	52 609 00	32 821.19
Stout Coal Company,	3	223	247	114,573 00	141,168.19
Calvin Pardee & Co.,	1	233	278	100 471 34	125 140.15
Ebervale Coal Company,	2	173 5	473	199,757 89	184 098
Charles M. Dodson & Co.,	1	230	200	73 535 71	90 000
Black Ridge Coal Company,	1	159	143	46,000 00	21 754
A. Pardee & Co.,	8	217	1 312	582 676 24	686,433 12
Linderman, Skeer & Co.,	4	229	721	366,000 00	335,657.07
A. J. Davis,	1	166	232	52,000 00	48,000
G. B. Markle & Co.,	4	208.1	783		413,811
M. S. Kemmerer & Co.,	1	209.5	290	119,806 45	128,218 19
Pardee Sons & Co.,	1	230.4	375	138,002 63	146,691.07
J. C. Hutchison,	1	207.4	231	129 293 09	84,783.15
McNair & Co.,	1	226.5	215	108,125 29	82,727
J. H. Swoyer,	2	235 4	777	295,000 00	326,806
Waddell & Co.,	1	254 2	121	51,548 24	53,661.19
Pittston Coal Company,	2	250	314	125,279 63	77,916
R. L. Cartwright,	1		7	1,500 00	1,000
The Kingston Coal Company, (Limited,)	3	243.5	525		394,087.09
Gaylord Coal Company,	1	266	348		163,010.16
Lehigh Valley Coal Company,	10	210	3,500	1,330 000 00	1,270,000
Lehigh and Wilkes-Barre Coal Company,	9	220.8	5,267	1,881 484 10	1,892,645 04
Red Ash Coal Company,	1	209.2	210	87,920 00	92,000
T. P. McFarland,	1	206	57		24 515
Coxe Bros & Co ,	4	176 8	1,171	503,318 91	534,761.48
A. Tompkins,	1	112 5	73		13,889
Waterman & Bros.,	1	230.5	32		16,029
Grove Bros.,	1	141.3	47		15,605
A. Langdon & Co., (Enterprise,)	1	219.6	326		137,930 07
Northumberland County:					
Paterson & Llewellyn,	1	274	525	237,671 05	178,959 06
J. Langdon & Co.,	1	293	322		114 935 03
Kendricks & Co.,	1	239	253		95 036.18
Tillett & Brother,	1	240	15	3 600 00	4 802
Mineral Railroad and Mining Company,	4	263.8	1,259	453,262 91	438,936 08
H. J. Toudy,	1	210	124	43,438 93	30,358.08
Excelsior Coal Mining Company,	1	275	267	107,164 88	142,471.14
May, Audenried & Co ,	1	183.8	163	51,704 32	26 415 06
Enterprise Coal Company,	1	259.2	255	123,373 91	141,820 11
Donty & Baumgardner,	1	207	100	51 246 81	32 158 06
Montelius, Robinson & Co.,	1	235.8	316	148,775 62	135,612.14

NAME OF OPERATOR.	Number of collieries operated.	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Northumberland County—Continued:					
Cruikshank & Emes,	1	274	161	$53,779 75	46,016.03
Philip Goodwill,	1	186	75	22,878 00	14,190.06
Graeber & Shepp,	1	242	183	95,030 80	86,000
George W. Johns & Bro.,	1	245.5	336	138,440 54	126,062.09
Smith & Keiser,	1	259 2	60	24,857 75	30,306.15
Schwenk, Robertson & Co.,	1	11	477	14,981 39	7,368.19
Schuylkill County:					
John R. Davis,	1	224	30	10 800 00	11,333 02
Thomas Burke,	1	300	1	30 25	235
Atkinson & Lessig,	1	216	11	4,000 00	3,354.17
Thomas Wren,	1	274	14	3 116 40	2 300
Fey & Rabbe,	1	211	15	2,343 60	2,776
Mill Creek Coal Company,	1	226.2	334		153,924.11
Samuel Brown,	1	250	4	550 00	700
Myers, McCreary & Co.,	2	230.8	505	161,673 07	137,620.06
E. & G. Brooke,	1	260	550	220,000 00	222,000
Richard Heckscher & Co.,	1	203	439	173,000 00	175 861.01
Edward L. Powell,	1	210	34	12 000 00	10.000
S. M. Heaton & Co.,	1	260	368		177,954.04
J. C. Haydon & Co.,	1	207	240	94,736 12	96,481.00
Primrose Coal Company,	1	225	132	44,513 00	55,193
Jones, Ward & Co.,	1	231.5	16	9,187 07	12 493.16
Layton S. Baldwin,	1	242.2	55	24,862 76	25,168.11
Jeremiah Taylor & Co.,	1	240.5	380	166,209 69	134 525.01
Vaughan & Jones,	1	156	6	1,590 75	958
Cambridge Coal Company,	1	211.5	22	9,048 81	9 565.12
Wood & Pearce,	1	200	56	15,369 28	16,500
William Lloyd,	1				10
James F. Donahoe,	1	240	47		8,000
George W. Johns & Bro.,	1	211.6	143	66,586 50	49,361.19
Louis Lorenz,	1	200	32	8,000 00	6,000
Oliver Ditson,	1	248	288	115.625 64	117.132.18
Miller, Hoch & Co.,	1	260	245	91,133 85	65.036
Daniel Kershner & Keifer,	1	104	4	150 00	700
Lawrence, Merkel & Co.,	1	250.5	263	112.407 40	112,625.15
John Denning,	1	190	10		1.850
Mitchell & Symons,	1	251	28	8.051 35	10.116.08
S. S. Bickel & Cleaver,	1	226	73	28,079 56	29,762 10
Jacob S. Hepner,	1	288	3	1,002 00	869.09
Phillips & Sheafer,	1	225	273	115,192 81	83,167
John A. Dutter,	1	157	51	17,559 50	11,166
Suffolk Coal Company,	1	248.7	284	121,257 64	127,400.04
Levi Miller & Co.,	1	258	400	165 318 37	146 899.17
Miller, Graeff & Co.,	1	230.5	304		85,382.03
Fisher Hazard,	1	165	196	70,205 80	52 774.16
William H. Harris,	1	199	136		21,132.02
Alliance Coal Company,	1	195.8	206	57,770 52	30.188.09
L. F. Lentz,	1	235 8	104		68,777.12
PHILADELPHIA AND READING COAL AND IRON COMPANY.					
Columbia county collieries,	2	225 3	460	195.447 99	215,540.19
Northumberland county collieries,	10	229.8	2.159	820,572 50	690.844.01
Schuylkill county collieries,	50	202.7	10 371	4 002 851 64	3.206,237.15
Philadelphia and Reading Coal and Iron Co.—Total,	62	219.9	12 990	$5,018 872 13	4.112,622 15

RECAPITULATION.

Total number of collieries,	319
Average number of days worked during the year,	275 01
Total number of employees,	75 169
Total amount paid in wages during the year,	$29,454,781 36
Total production of authracite coal, for the year ended December 31, 1881, (tons,)	27,929,128.15
Average amount per ton paid in wages,	$1 06.55
Average amount of coal produced to each employee, (tons,)	373 14

BITUMINOUS COAL.

A TABLE showing number of collieries, number of employés, production, etc., of the bituminous coal fields of Pennsylvania, compiled from operators' returns to this office, for the year ended December 31, 1881.

NAME OF OPERATOR.	Number of collieries	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Allegheny County:					
Bailey, Wilson & Co.,	1	134	161	$74 056 80	57,000
Jones & Laughlin,	1	307	153	102.000 00	97,558
J. C. Risher & Co.,	1	225	187	100.000 00	71.789
H. B. Hays & Co.,	3	162.3	463	184.500 00	147.395.06
Imperial Coal Company,	2	251	369	153,036 42	153 494
Mansfield Coal Company,	2	216	216	112 790 00	87,147.04
A. J. Schulte,	1	240	52		35.435
George Lysle & Sons,	1	150	192		100 000
Hartley & Marshall,	1	317	316	134.760 00	166.320
O'Neil & Co.,	1	220	200	130.000 00	87.365.17
The Fort Pitt Coal Company,	1	270	90	34,800 00	45 560
S. B. Gregg,	1	229	32	13,500 00	14 223.17
J. A. Ewing.	1		33	10.000 00	12.000
Foster, Clark & Wood,	1	180	144	71.000 00	59.000
Munhall Brothers,	1	60	106	12.000 00	11 000
National Coal Company, (Limited,)	1	182	139	44.510 35	43,407.07
Chartiers Valley Coal Company,	1		82	35.400 10	32.574
Thomas Fox,	1	310	56	26,325 10	27.600
Oak Ridge Coal Company, (Limited,)	1	275	104	54,105 79	43,607.10
Dickson, Negley & Co.,	1	220	35	16,087 00	15,480
William J. Snodgrass & Co.,	1	130	99	31 498 72	31,000
Ithamar D. Risher,	1	111.2	165	61 126 06	48,870
Frank Armstrong,	1	278	126	52,674 83	44.055
William Stones' heirs,	1		184	71.000 00	57.000
Belview Coal Company,	2	223	190	115.000 00	80,161
Hackett & Rafferty,	1	219	168	69.373 71	51.247
J. B. Corey & Co.,	1	250	35	3,700 00	4.000
New York and Cleveland Gas Coal Company,	7	250	989	493.245 51	630.661.17
Greenock Coal Company,	1	91	13	3.226 16	3,253
Hampton Coal Company,	1	254.5	218	101,391 14	85 650
Milesville Coal Company,	1	125.5	77	26 272 37	18,953
M. Graver & Co.,	1	263.3	195	94.615 67	92,603.04
Pennsylvania Salt Manufacturing Company,	1	302	53	33.713 55	32 600
Osceola Coal Company,	1	240	135	64,542 44	53,170
Penny Coal Company,	1	160	186	78 750 00	70.000
Westmoreland Coal Company,	1	260		13.545 00	16.880
Horner and Roberts,	1	203	265	95.600 00	71.998.12
John Carlin & Co.,	1	278	142	70.690 34	57.816
Patterson Coal Mining Company,	1	207	43	22 259 11	15.873.10
George Jones' heirs,	1	166	124	47,192 12	32,314
Grant Coal Company,	1	120	230	41.667 17	41.850.13
Joseph Walton & Co.,	3	209.5	536	248,890 69	192.976
T. B. Robbins & Co.,	1	230	146	65,000 00	65.000
Wettengel & Gormley,	1	250	72	25,000 00	21,500
J. Weinman,	1	298	12	9.620 13	8,839.07
J. Weinman & Co.,	1	302	15	10,477 79	9,159 01
John Etter,	1	300	9	6,623 67	6 205.06
James O'Neil,	1	202	135	58,100 00	45,600
W. H. Brown,	3	192.6	779	174,838 80	192.376
Morris McCue,	1	200	49	23,940 00	15.960
W. P. Rend & Co.,	1	234	160	74.137 26	50,003
Birmingham Coal Company, (Limited,)	2	295	576	278,275 62	183,545
William T. Baines & Co.,	1	150	51	19.290 00	15,000
Pittsburgh and Castle Shannon Railroad Company,	1	310	250	91,366 00	134,450

NAME OF OPERATOR.	Number of collieries.	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Allegheny county—Continued :					
James Skillen,	1	100	31	$6,000 00	7,099.03
Gray, Bell & Co.,	3		134		18 779
Thomas Fawcett, (estimated,)	1		148		56.600
James Lynn & Co.,	2		190		41,709
Armstrong county :					
James O'Mealy,	2	240	12	4,260 00	5.396
Kittanning Iron Company, (Limited,)	1			22,273 12	22 285
Franklin Coal Company,	1	30	26		1,800
F. B. & A. Laughlin,	1	290	44		16,342
Beaver county :					
Scott & Co.,	1	250	150	62,500 00	50 000
J. & W. H. Clayton,	1	298	13	5 035 56	3 009
James H. Coburn,	1	175	3		370.14
A. Davidson,	1	200	11		1,627
John Holmes.	1	300	26		8,400
J. F. Mansfield,	1	305	40	16,000 00	14,000
James Sutherin,	1	182	132		12,231
Bedford county :					
A. Covalt & Co.,	1	243	25	7,077 30	10 903
Richard Langdon,	2	180	25		13,828
Kemble Coal and Iron Company,	2		69		13,753
Blair county :					
Blair Iron and Coal Company,	1	300	213	96,675 19	113 039 07
Glen White Coal and Lumber Company,	1	311	115	47,909 00	47,807 04
Dennlston, Porter & Co.,	1		132	45,250 49	49,464.16
S. C. Baker,	1	300	75	25,000 00	8 725
Bradford county :					
Towanda Coal Company,	3	242 2	410	239,898 84	228 471.02
Schraeder Coal Company,	3	276	248	152,256 05	210.415.11
Long Valley Coal Company,					15 970
Fall Creek Coal Company,					2,000
Butler county :					
Burnett Coal and Coke Company,	1	110	31		4,200
H. R. Fullerton,	1	300	14	6,000 00	3,930
Mercer Mining and Manufacturing Company,	1		111	58.524 52	67.582
Union Coal and Coke Company, (Limited,)	1	251	80	45 000 00	30.000
J. L. Turner,	1	150	64	16,503 37	16 303 17
Cambria county :					
D. Laughman & Co.,	2	227	64		30.000
Bell's Gap Railroad Company,	1	300	131	62.139 60	81,453
E. W. Mentzer,	1		40	14 611 21	24 049.01
W. H. Piper & Co.,	2	276	146	55.493 78	84,814.15
J. C. Stineman,	1	255	37	10.544 04	20,475.16
The Johnstown Manufacturing Company,	1	contract		5,832 79	7,409.18
S. H. Smith,	1	240	53	19,208 55	31,335
Aurora Coal Company,	1	206	18	7,560 45	10.245.05
Argyle Coal Company,	1	60	10	973 00	2,400
D, Eldridge, lessee,	1	280	43		11,000
William Hopkins, lessee,	1				7,100
Cambria Iron Company,	4	300	446	195 563 00	260,142
South Forks Coal Works Company,	1	226	17	7,177 22	11,502.13
Centre county :					
W. J. Jackson,	2	304	81	37,095 35	50,508 12
Bellefonte and Snow Shoe Railroad Company,	2		70		4,027
Clarion county :					
J. McCollum,	1	156	54	11 341 86	9.641
T. J. Skidmore,	1	220	93	36,222 26	41 419
Stephenson & Mitchell,	1	240	123	48,571 43	48 441
Alexander Reynolds & Sons,	1	275	100	27,000 00	27,400
Fairmount Coal and Iron Company,	3			118.224 95	90.536
Pittsburgh Coal Mining Company,	2	300	130	43,914 83	47,544
Clarion Coal Company,	1			1.800 00	2,400
Rimersburg Coal Company,	1	140	35	2,385 00	2,40

NAME OF OPERATOR.	Number of collieries.	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Clearfield county:					
Beaver Run Coal Company,	1	152.5	79	$22,848 77	41,694
Clearfield Coal Company,	1	125	46		11,400
H. K. Grant, agent,	1	272	44	16,000 00	29,000
A. & W. H. Barlow,	1		43	14,262 00	28,374
Mitchell & Keller,	1	19	13		1,516
Decatur Coal Company,	1	183	68		59,510
Thomas Barnes & Brother,	2	240	113	36,500 00	70,000
Empire Coal Company,	2	125	104	10,000 00	22,500
Fisher Brothers & Miller,	1	300	173	105,000 00	140,000
Kittanning Coal Company,	1	180	192	78,200 00	102,000
Beadling Brothers,	1	50	16	2,154 74	2,943
Laurel Run Coal Company,	1	223	95		83,884 10
H. J. Smith & Co.,	1	194	72		48,613
Reakirt, Brother & Co.,	1	190	30		21,000
Bell, Lewis & Yates,	1	270	450		248,000
Henry Liveright,	1	210	33	14,697 97	20,639
A. B. Lueder,	1	156	7	748 28	1,319
Victor Coal Company, (Limited,)	1	196	56	20,622 54	28,939.18
Webster Coal Company, (Limited,)	1	237	311	120,000 00	194,176
Moshannon Coal Company,	2	180	199	82,334 42	115,252.11
Whitehead & Co.,	3	300	406	247,500 00	303,000
George F. Huff & Co.,	1	285	65	16,966 77	53,923.11
R. B. Wigton & Sons,	1	181	168	92,269 47	129,062
Robert Hare Powel & Co.,	3	250	454	226,834 58	375,395
The Sandy Lick Gas Coal and Coke Company,	1	216	119	49,978 65	72,541.09
Sandy Lick Gas Coal and Coke Co., "Sandy Lick,"	1	165	57	20,434 15	28,808.10
Berwind, White & Co.,	4		429		157,000
Elk county:					
North-Western Mining and Exchange Company,	4	239	450	242,880 67	226,970.13
Saint Mary's Coal Company,	1	280	168	80,338 00	84,000
Kaul & Hall,	1		119	43,737 68	61,301
Daniel Eldridge, lessee,	1	280	83	31,000 00	43,000
Fayette county:					
Frazer & Frye,	1	184	89	37,601 16	40,823.10
William J. Rainey,	2	200	177	50,000 00	100,000
James Cochran & Co.,	1	230	33	15,000 00	18,800
Pittsburgh and Connellsville Gas Coal and Coke Co.,	3	300	195	111,456 97	182,400
Mahoning Coke Company, (Limited,)	1	250	54	33,502 16	53,425
Dunbar Furnace Company,	2	275	112	52,577 47	94,953
B. F. Kister & Co.,	1	260	30	15,425 00	21,300
Joseph Garrow,	1	104	10	3,450 00	4,500
Chicago and Conn. Coke Company,	1		93	49,426 36	23,259
Hogsett, Hanna & Co.,	1	300	70	36,702 80	See coke.
Cambria Iron Company,	2	296	431	213,350 00	279,135
J. Newmyer & Sons,	1	300	32	14,000 00	27,000
Fayette Coke Furnace Company,	1	50			1,000
Percy Mining Company,	1	300	115	45,000 00	40,000
A. C. Rutherford,	1	200	34	16,000 00	18,000
Joseph Trumbull & Co.,	2	200	75	53,860 22	66,391
James Cochran,	1	300	54	29,000 00	39,000
Stewart Iron Company, (Limited,)	1		60	25,034 40	32,255
Laughlin & Co.,	1	290	61	40,112 01	63,581.18
Graham, Snowden & Co.,	1	172	100	20,713 00	19,000
S. Cochran Sons & Co.,	1	274	18	10,147 26	16,531.18
Youngstown Coke Company, (Limited,)	1	250	189	78,332 60	120,157.12
Alps Coal Company,	2	162	95	27,774 00	28,500
S. Colvin & Co.,	1	275	66	34,245 33	49,000
Mount Braddock Coke Company,	1	270	75	40,000 00	49,000
H. C. Frick & Co., (see coke,)	7	280.2	747	376,629 62	6,000
John A. Woods & Son,	1	42	104	9,000 00	8,444
J. R. Stauffer & Co.,	1	286	29	14,145 00	24,440
A. H. Sherrick,	1	250	45	20,000 00	29,280
Rafferty & Co.,	3		105		61,885
C. H. Armstrong & Son,	2		88		17,256
J. M. Schoonmaker,	3	182	230		60,360
Huntingdon county:					
Mears Brothers,	1		44	14,466 20	15,598
M. C. Sweet & Co.,	1	200	60	18,500 00	25,500.
Rockhill Iron and Coal Company,	1	301	240	99,782 00	151,431.03

NAME OF OPERATOR.	Number of collieries.	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Indiana county:					
Smith & Turner,	1	304	7	$2,200 00	5,875
Jefferson county:					
Elias Rogers,	1	258	27	13,847 00	18,593
Hamilton Coal Company,	1	214	85	40,940 47	55,737
Powers, Brown & Co.,	1	250	137	60,000 00	60,000
Frank Williams & Co.,	1	286	39	20,451 13	28,065 15
Reynoldsville Coal Company,	1	272	48	21,266 89	32,582.10
Lawrence county:					
Lee & Patterson,	1	239	122	52,000 00	35,000
Clinton Coal Company,	1	221	77	33,531 65	25,567
Neshannock Coal Company,	1	214	45	14,000 00	12,211
Wampum Iron Company,	1	202	50	16,798 36	14,118
W. B. Enos & Co.,	1	236	70	29,156 00	25,000
Mahoning Valley Iron Company,	1	...	50	.....	18,800
Lycoming county:					
McIntyre CoalCompany,	4	285	507	.....	236,924.13
McKean county:					
J. E. Butts, agent,	1	209	21	20,018 33	8,470
Buffalo Coal Company,	3	250	235	123,444 01	110,098
Mercer county:					
Curtis & Boyce,	2	240	78	.	22,590
John F. Filer & Co.,	1	228	73	35,021 24	22,728.14
Snyder Coal Company,	1	257	75	48,806 97	32,810 05
Buhl, Westerman & Co.,	1	225	57	21,500 00	18,400
Jackson Coal Company,	1	281	40	14,736 44	17,930
Neshannock Coal Company,	1	150	39	7,157 00	150
L. M. Ormsby & Co.,	1	164	76	15,353 31	19,764
Morris Coal Company,	1	282	56	19,946 80	12,777.60
Mercer Iron and Coal Company,	1	295.7	191	. .	64,285
William Houston,	1	200	7	2,150 00	2,450
Mercer Mining and Manufacturing Company,	1	...	110	53,431 01	60,435.19
P. H. Ebberts,	1	...	8	300 00	1,500
Pierce Coal Company, (Limited,)	1	...	123	59,855 36	55,000
Pierce & Scott,	1	...	41	.....	11,919.10
Dunham & Roberts,	1	...	69	.....	12,338.05
Wheeler Iron Company,	1	...	30	.....	5,743
Somerset county:					
B. D. Morgan & Co.,	1	275	30	17,096 75	20,000
James Cochran,	1	217	21	4,226 00	10,065
J. W. Williams,	1	164	22	4,193 25	5,650
C. W. Williams,	1	175	22	5,093 25	6,427
Thomas Price, senior,	1	50	12	5,000 00	966
Salisburg Central Coal and Coke Company,	1	190	37	7,952 08	15,680
Keystone Coal Company,	1	293	99	46,641 00	49,550
Philson Iron and Coal Company,	1	...	34	.	8,695.13
Swede Iron and Coal Company,	1	.	3	.. ..	50
W. J. Smith & Co.,	1	270	46	. ..	32,495.13
Meyersdale Coal Company,	1	200	30	..	20,600
Fair View Coal Company.	1	60	18	2,200 00	2,500
Baltimore and Cumberland Coal Co., (Limited,)	1	260	35	16,500 00	20,600
Cumberland and Elk Lick Coal Company,	1	54	58	8,027 16	13,107 08
Sullivan county:					
State Line and Sullivan Railroad Company,	1	52	214	.....	14,000
Tioga county:					
The Morris Run Coal Mining Company,	3	250	748	357,449 00	352,415
Blossburg Coal Company,	3	300	1,036	460,500 85	330,883.18
Fall Brook Coal Company,	5	275	778	405,749 38	380,571
Venango county:					
Tiel & Lytle,	1	231	7	3,215 43	3,834 10
Oil City and Ridgway Coal and Mining Company,	1	112	50		4,318.04
S. P. McCalmont,	1	..	50	....	9,326 05

NAME OF OPERATOR.	Number of collieries.	Number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Washington county:					
Abe Hays Coal Company,	1	183	54	$28,145 78	21,311.19
F. H. Coursin,	1		71	11,000 00	13,300
David M. Anderson,	1	234	13	5 259 83	8,756 05
Gamble & Risher,	2	225	115	72 000 00	68,125
Harlem Coal Company,	3	159.2	224	80,000 00	64 306.04
Miller & Co.,	1	300	50	25,470 70	18 752
R. Wellington,	1	200	34	19,000 00	12 000
Crowthers, Musgrave & Co.,	2	207	120	45,808 57	42 358
Keystone Coal Company, (Limited.)	1	225	82	24,108 00	18 288
Knob Coal Company,	1	180	76	19 643 33	18,497
Blackburn & Mort,	1	120	29	25,000 00	20 672
T. J. Wood,	1	100	48	13,000 00	10 000
Lindsey & McCutcheon,	1	160	48		10,310.10
Jonathan Allison,	1	250	62	26,750 00	30,000
Chicago Gas Coal Company,	1	284	150	70,087 00	55,968.13
Paterson & Sauters,	1	200	125	55 000 00	50,000
J. S. Neel,	1	220	135	62,329 80	48,114
Robbins Block Coal Company,	1	250	175	75,000 00	75,000
Pittsburgh and Walnut Hill Coal Company,	1	220	123	40,000 00	40,000
W. S. White & Son,	1	265	6	1,400 47	2,774
V. Harding,	1	270	40	12,050 43	12,800
G. W. Crawford & Co.,	1	116	80	25,000 00	18,000
John H. Ewing,	1	156	13	1,600 00	125
J. V. H. Cook,	1	220	10	3,000 00	4,446
A. A. Hutchinson & Brother,	1	275	180	100,000 00	125,000
George Crawford & Co.,	1	156	78		8 200
Jacob Legler,	1	26	19		1 260
Westmoreland county:					
W. A. Kifer,	1	280	29	15,716 73	13,789.11
B. F. Coughenour,	1	284	15	7,066 22	503
J. W. Overholt, agent,	1	283	26	11,886 00	20,376
The Southwest Coal and Coke Company,	2	300	200	76,643 26	52,625
C. P. Markle & Sons,	3	300	212	93 102 25	See coke.
Penn Gas Coal Company,	4	205	794	95,000 00	485,240
Fox, Kifer & Co.,	1	145	70	17,480 44	16 200
Westmoreland Coal Company,	5	212.2	799	378 609 00	493,023
Sneathen & Wilson,	1	102	79	17,172 67	13,902.07
Phillips & Mettenzway,	1	140	58	23 529 66	16,589.12
Isabella Furnace Company,	1	300	198	48,000 00	120 000
Jones & Watkins,	1	109	46		10 021
D. B. Ashbaugh,	1	238	100	45,900 00	56,121
The Millwood Coal and Coke Company,	1	300	105	40,528 26	65 595 19
John & James Gilmore,	1	165	127	45,000 00	35,321 08
W. L. Scott & Co.,	1	250	276	135,167 50	157,500
The Saltsburg Coal Company,	1	295	120	70,699 27	89 336
M. Saxman, junior & Co.,	1	310	71	36,000 00	54,609
R. C. Smertz & Co.,	1	270	14	9,345 73	10,927.06
Hurst, Stoner & Co.,	1	296	53	29,810 32	41,573
The West Newton Coal Company,	1	121	102	17,721 14	13 007
A. C. Overholt & Co.,	1	238	74	34,000 00	38,000
Waverly Coal and Coke Company,	1	279	163	84,223 33	40,508.02
Youghiogheny Gas Coal Company,	1	210	57	43 576 00	26 775.17
John Blyth & Co.,	1	220	70	34,985 69	42,226
Mullen, Strickler & Co.,	1	225	60		40,500
Hodgson & Crombie,	1	155	38		7,600
Coulter & Huff,	1	313	148		125,310
Dillinger, Tarr & Co.,	1	285	49	24 200 00	32,830
Boyle & Rafferty,	1	285	250	102,900 00	160 000
C. H. Armstrong & Son,	1	52	102		8,600
H. M. Cochran,	1	26	60		1,680
Loyalhanna Coal and Coke Company,	1	182	124		67 333
Morewood Coke Company,	1	52	142		21,000
D. W. Clark,	1	26	108		5,226
Wyoming county:					
Stony Brook Coal Company,	1	88	1	240 00	300

COKE.

An exhibit of the number of coke ovens, and amount of coke manufactured in the bituminous coal fields of Pennsylvania, compiled from operators' returns to the Bureau, for the year ended December 31, 1881. The number of employés, etc., are included in tables on bituminous coal.

Name of Operator.	Number of coke ovens.	Amount of coke manufactured, in tons, during the year.
Pennsylvania Salt Manufacturing Company,	6	1,559
Corey & Co., (only six ovens in operation,)	40	1,500
Hackett & Rafferty,	29	2,885
William Stone's heirs.	5	1,500
The Fort Pitt Coal Company,	16	900
Mansfield Coal and Coke Company,	22	4,746
Imperial Coal Company,	60	10,100
Kittanning Iron Company, (Limited,)	66	10,717
J. & W. H. Clayton,	2	476.02
John Hulmes,	2	566
Blair Iron and Coal Company, (part coked in yard,)	100	55,726.14
Glen White Coal and Lumber Company,	80	32,402
Burnett Coal and Coke Company,		175
H. R. Fullerton,	1	10
D. Laughman & Co.,	17	6,000
Alexander Reynolds' Sons,	42	12,000
Bell, Lewis & Yates,	56	22,931
William J. Rainey, (most of the ovens recently built,)	225	50.000
James Cochran & Co.,	44	15,180
Pittsburgh and Conn. Gas Coal and Coke Company,	253	106,503
Mahoning Coke Company, (Limited,)	100	32,301
Dunbar Furnace Company,	159	49,582
B. F. Kister & Co.,	50	16,900
Chicago and Conn. Coke Company, (Limited,)	200	24,815
Hogsett, Hanna & Co.,	120	35,674
Cambria Iron Company,	500	180,273
J. Newmyer & Sons,	42	30,000
Fayette Coke Furnace Company, (ovens built in 1881,)	130	800
Bercy Mining Company,	62	25,000
James Cochran,	100	31,000
Stewart Iron Company, (Limited,)	80	1,952
Laughlin & Co.,	114	39,212.10
Snowden & McCormick,	20	3,000
S. Cochran Sons & Co.,	35	10,517.17
Youngstown Coke Company, (Limited,)	240	74,615
Rockhill Iron and Coal Company,	100	24,711.11
Powers, Brown & Co.,	31	10,000
Wampum Iron Company, (Limited,)	18	3,308
B. F. Coughenour,	20	7,285
J. W. Overholt, agent,	36	13,784.03
W. A. Kifer,	49	17,236.07
The Southwest Coal and Coke Company,	138	46,863
Fox, Kifer & Co.,	18	1,500
C. P. Markle & Sons,	272	116,236.19

NAME OF OPERATOR.	Number of coke ovens.	Amount of coke manufactured, in tons, during the year.
Isabella Furnace Company,	200	80,000
M. Saxman, junior, & Co.,	60	16,800
R. C. Schmertz & Co.,	8	1,444
Hurst, Stoner & Co.,	70	26,883
A. C. Overholt, & Co.,	110	34,000
Jonathan Allison,	2	600
John Carlin & Co.,	8	2,830
Fairmount Coal and Iron Company,	30	9,504
S. Colvin & Co.,	80	39,250
Mount Braddock Coke Company,	120	38,500
Pittsburgh and Walnut Hill Coal Company,	8	1,000
Waverly Coal and Coke Company,	117	31,455
H. C. Frick & Co.,	1,022	368,370
W. P. Rend & Co.,	5	1,300
Morris McCue,	8	300
Union Coal and Coke Company, (Limited,)	30	
Whitehead & Co.,	....	90
Denniston, Porter & Co., (pit coke,)	....	12,017
Blossburg Coal Company,	200	56,084.05
Pittsburgh and Castle Shannon Railaoad Company,	8	2,400
J. R. Stauffer & Co.,	40	17,380
A. H. Sherrick,	70	18,300
Mullen, Strickler & Co.,	82	28,000
Greensburg Coal Company,	10	4,000
A. A. Hutchinson & Brother,	195	87,000
Cambria Iron Company (Belgian ovens,)	102	28,000
Cambria Iron Company, coked in pits, (ovens being erected,)	30	10,000
Dillinger, Tarr & Co.,	64	22,907
Boyle & Rafferty,	261	100,000
S. C. Baker,	21	5,545

RECAPITULATION.

Total number of collieries,	382
Average number of days worked during the year,	217.07
Total number of persons employed,	35,530
Total amount paid in wages during the year,	$14,540,057 50
Total production of bituminous coal for the year ended December 31, 1881, (tons,)	15,916,123.12
Total number of coke ovens,	6,640
Total production of coke for the year, (tons,)	2,176,403.08
Average amount per ton, paid in wages,	$0 92.05
Average amount of coal produced to each employé, (tons,)	442.37

THE AVAILABLE TONNAGE OF THE BITUMINOUS COAL-FIELDS OF PENNSYLVANIA.

[*A paper read before the American Institute of Mining Engineers, at the Harrisburg meeting, October, 1881.*]

By Dr. H. M. CHANCE, *Assistant Geologist, Pennsylvania Geological Survey.*

The great outspread of the coal measures over portions of thirty-one of the sixty-seven counties of Pennsylvania, and the large number of workable seams comprising the coal series,—together with some workable seams lately shown to belong to the (so-called) barren measures,—create the impression that these fields contain a practically inexhaustible supply of fuel, and those who have estimated or attempted to estimate their available tonnage have generally promulgated this view.

But the *actual total contents* of this coal-field can be of little or no importance to us at present; *calculations including all seams*, whether thick enough to mine or not, whether pure enough to furnish a marketable fuel or not, whether accessible at reasonable depth or not, are of no practical value. As coal producers, we are interested not in the total contents, but in the total amount of *easily accessible coal of good quality contained in beds thick enough for remunerative mining.* The estimates contained in this paper refer exclusively to workable and accessible coal of commercial value,—we may call it "*available*" *coal.*

I am not aware that any one has as yet attempted to estimate in detail the amount of *available* coal in each county and in each bed. Heretofore the data to do this have been lacking, but now, since the completion by the geological survey of the series of county reports, illustrated by geologically colored county maps, it is possible to take up each county separately, and estimate in detail, approximately, at least, the contents of each seam.

The general estimate to which I have referred as lacking the elements of detail essential to accuracy, have usually been made by multiplying the total *area* covered by coal measures by an *assumed average* of the united thicknesses of the workable seams. Thus some estimates place this area at between twelve and thirteen thousand square miles, and the average coal thickness at from fifteen to thirty feet or the amount of available coal at from 180,000,000,000 to 300,000,000,000 tons. By reference to the tables accompanying this paper it will be seen that these figures greatly exceed the total of my detailed estimates.

Calculations based on an *assumed* average thickness of coal must necessarily give untrustworthy results, because it is not possible to determine *a priori*, and in advance of detailed estimates, the average coal thickness in a field where every bed is subject to more or less radical variation in its thickness and quality.

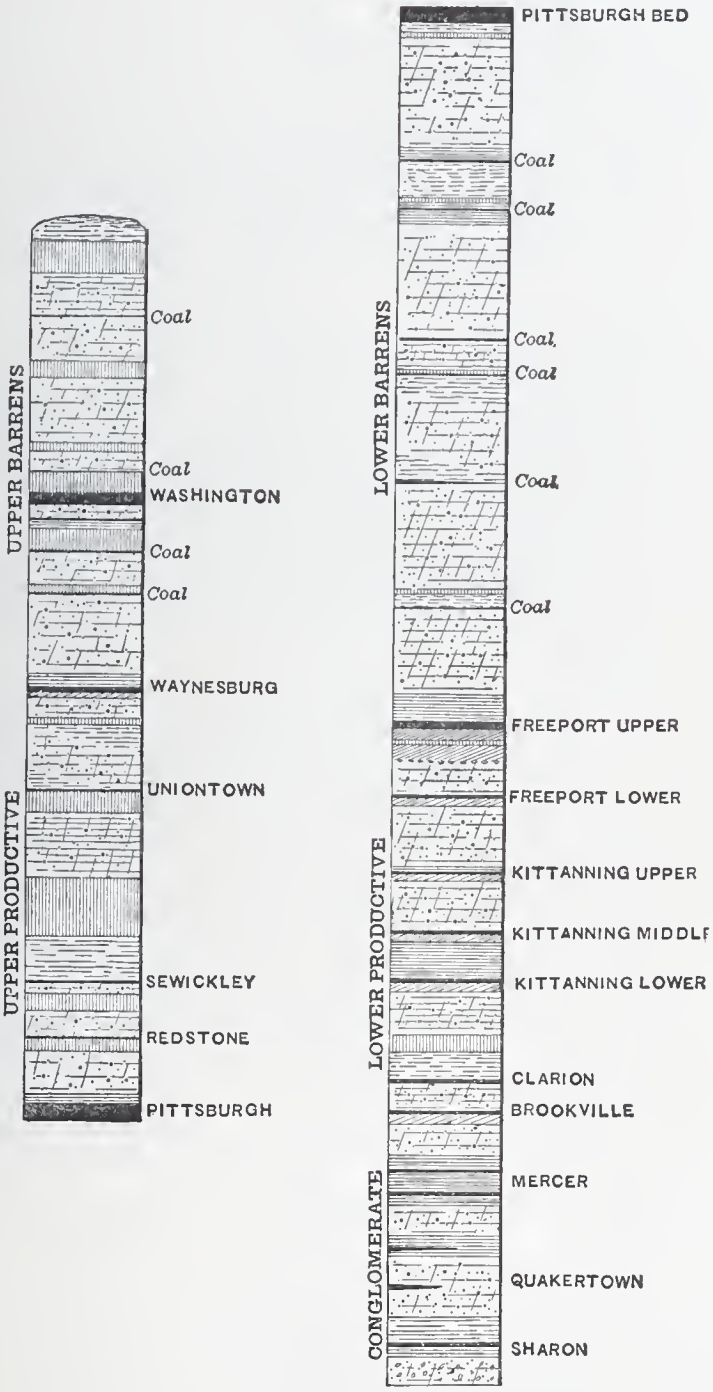
The compiled columnar section of the coal measures accompanying this paper (scale 200 feet to 1 inch) shows sixteen important workable seams, besides several beds of minor importance, but no one of these seams is of workable thickness and quality over its entire area, and many of them—notably the thickest and best—extend into but a few of thirty-one coal counties, while ten or twelve of these counties contain only the lowest seams of the series.

In counties containing throughout their entire area persistent seams of coal, large deductions are to be made for areas over which some beds thin to an unprofitable thickness, or become locally too impure to furnish a marketable fuel.

I have not attempted to calculate the several coal areas with any great degree of accuracy; with few exceptions, the areas are expressed in acres reduced from measurements based on a unit of five square miles, hence these acreages nearly all appear as multiples of 3,200 acres. The maps from which the calculations were made are drawn on a scale of two miles to one inch, and as these are necessarily only approximately correct both in the ground plan and coloring, a finer differentiation would but lend false pretensions of accuracy to work necessarily involving errors of considerable magnitude.

Seams less than two feet thick have been ignored. The areas of beds from two to three feet thick are calculated down to water-level; their areas beneath water-level have been ignored. Seams from three to five feet thick are estimated to a depth of one hundred and fifty feet beneath water-level. The areas of seams more than five feet thick are computed to a depth of four hundred feet beneath water-level when their quality and thickness are known. The areas of beds more than four feet thick lying above water-level, but over-laid by a great thickness of superimposed measures, have been calculated so as to include a distance of from one to two miles from their outcrop lines,—varying with the dip.

BITUMINOUS COALS OF PENNSYLVANIA



The maps from which the areas were computed are colored in five tints to represent the sub-divisions of the carboniferous system of rocks, as follows:

Upper Barren Coal Measures.

Upper Productive Coal Measures.

Lower Barren Coal Measures.

Lower Productive Coal Measures.

Conglomerate series, (with coals.)

The lower edge of the Upper Productive tint limits the area of the Pittsburgh bed; theLower Barren tint defines that of the Freeport Upper coal, and the Lower Productive tint the Brookville coal bed; the areas of intermediate or higher seams were estimated from assumed intermediate outcrop lines.

After computing the total area of each persistent seam in any county, the percentage of this area over which the bed will probably be found of workable quality and thickness, and its average thickness were arbitrarily assumed after a careful study of the data published in the county reports. It is evident that there is here introduced a large personal error; it is impossible to entirely eliminate such errors, but they can hardly be large enough to seriously impair the value of the conclusions. The mass of facts published in each county report thoroughly demonstrates the character and value of each coal seam and limits this personal error between *comparatively* narrow bounds.

But it matters little how much time and care are spent upon such work, the personal error must always be a factor of some importance. Even in the anthracite regions, which are so thoroughly developed by actual mining as well as by an immense amount of prospecting work, there seems to be some difficulty in estimating the available coal. In his report on the Philadelphia and Reading Coal and Iron Company's property, Mr. Joseph S. Harris estimates the total contents of the anthracite regions at 13,999.8 square miles one foot thick—equivalent to about 15,600,000,000 tons,—and the coal area at 483 square miles. In a paper read September 1st, 1879, before the American Association for the Advancement of Science, Mr. P. W. Sheafer estimates the total contents at 26,361,076,000 tons, placing the coal area at 470 square miles. It is evident that the discordance between these two estimates is due in part to an unavoidable personal error; Mr. Sheafer estimating the average coal thickness at nearly double that assumed by Mr. Harris,—the estimate of coal areas differing very slightly.

The coefficient of error is probably greatest in the counties containing very small available areas,—these have been most liberally estimated, (Bradford, Cameron, Clinton, Forest, Crawford, Lycoming, McKean, Potter, Sullivan, Tioga, Venango, and Warren); but in the counties containing large available areas the estimates are probably much less than the actual amount, as I have strenuously endeavored to underestimate rather than exaggerate the available tonnage.

The actual average coal contents per acre for each foot of bed measurement is somewhat in excess of 1,650 tons of 2240 pounds, but deducting

one-eleventh for slate, bone, and sulphur partings, I have assumed an average of 1,500 tons of 2240 pounds per acre for each foot of bed measurement.

The total amount of available coal, limited as above to depth, thickness, etc., is 33,547,200,000 tons.* Assuming that 75 per cent. of this can be won in mining, we have 25,160,400,000 tons as the possible product.

There is little doubt but that under good mining management fully 75 per cent. of this coal can be recovered. Under favorable circumstances, more than 90 per cent. should be won at mines worked on the long-wall plan or on a modification of the long-wall and panel sysems.

The total available tonnage may be divided thus :

Beds over 6 feet thiek,	10,957,200,000
Beds from 3 to 6 feet thiek,	19,586,800,000
Beds from 2 to 3 feet thiek,	3,003,200,000
Total,	33,547,200,000

Excluding coals less than three feet in thickness we have an available tonnage of 30,544,000,000 tons, of which 75 per cent. being recovered=22,908,000,000 tons as the possible output from seams three feet or more in thickness. Probably two thirds of this amount lies favorably situated for mining, and at ordinary prices for labor can be mined and placed on the cars at an average cost not exceeding one dollar per ton; but the remaining third lies beneath water-level or beneath a thick covering of superimposed measures, and will probably cost from one dollar and a quarter to one dollar and a half per ton at the present price of labor. This two thirds =15,272,000,000 tons, accessible above water-level, and contained in beds not less than three feet thick, is sufficient to maintain the present average yearly output from Pennsylvania for about eight hundred years, or to supply the whole world for fifty years.

The statistics of production in Pennsylvania show a yearly increase of about 6 per cent. from 1864 to the present time. If this ratio of increase is maintained, the yearly output will reach an enormous figure in thirty or forty years (as shown in the first column of the following table); but as West Virginia, Ohio, Indiana, and several of the Western States are rapidly developing their coal resources and taking their share of the increased demand, it does not seem probable that this percentage of increase can long continue, and I have accordingly calculated another table on a scale of decreasing percentages of increase,—shown in the second column,—estimated on a basis of 16,000,000 tons production in 1880.

Year.	*Yearly Tonnage.*	*Yearly Tonnage.*	*Yearly Increase. (compounded.)*
1880	16,000,000	16,000,000	
1890	28,640,000	28,640,000	6 per cent.
1900	51,265,600	46,396,800	5 per cent.
1910	91,765,424	68,000,000	4 per cent.
1920	164,270,219	91,120,000	3 per cent.
1930	—	111,166,450	2 per cent.
1940	—	122,840,000	1 per cent.

* The estimates do not include the Broad Top Coal Field.

Although the figures of the second column are much smaller than those of the first column, they still are in my opinion much in excess of any output we will ever reach in Pennsylvania. I am inclined to think that the ratio of increase will diminish more rapidly,—say 1 per cent. every five years,– that the maximum output will be reached between 1900 and 1920, and will not exceed 50,000,000 tons per annum. At this rate more than five centuries will be required to exhaust the coal.

Seams less than three feet in thickness, unless of unusual purity, or located in the counties forming the northern edge of the coal-field, are of little importance at present; nearly all the coal now marketed coming from seams averaging three and a half feet or more. Many of the smaller and more impure coals will never be marketed,—they will answer well to supply the local demand for domestic use and small manufacturing establishments. Probably 10 per cent. of the total available coal will be used to meet this demand, but only a small percentage of this will actually be won in mining, as small mines (*country banks*) worked vicariously from year to year are almost invariably mismanaged, and more than one half the coal irrecoverably lost.

The possible output from beds above water-level, and more than three feet thick, has already been estimated at 15,272,000,000 tons. It will be safe to assume that one third of this will be of sufficiently good quality to furnish good coke, an amount (5,090,666,666 tons) sufficient to smelt 2,500,000,000 tons of iron; the remaining ten thousand million tons will furnish excellent gas and steam coals.

The average workable thickness and available tonnage of each seam are shown in the following table, which is illustrated by the columnar section drawn on a scale of two hundred feet to an inch.

Upper Barren Measures:			
Washington bed,	3′ to 3½′,	787,200,000	
			787,200,000
Upper Productive Measures:			
Waynesburg bed,	3′ to 5 ′,	2,126,400,000	
Uniontown bed,	2′ to 3 ′,	312,000,000	
Sewickley bed,	3′,	432,000,000	
Redstone bed,	2′ to 3 ′,	326,400,000	
Pittsburgh bed,	6′ to 12 ′,	10,438,800,000	
			13,635,600,000
Lower Barren Measures:			
Brush Creek, Coleman, etc., beds,		878,400,000	
			873,400,000
Lower Productive Measures:			
In Westmoreland, Fayette, and Allegheny counties,		2,064,000,000	
Millerstown bed,	3′,	28,800,000	
Freeport Upper bed,	3′ to 5′,	3,764,800,000	
Freeport Lower bed,	2′ to 6′,	2,385,600,000	
Kittanning Upper bed,	2′ to 4′,	1,596,000,000	
Kittanning Middle bed,	2′ to 3′,	829,800,000	
Kittanning Lower bed,	2′ to 6′,	4,225,200,000	
Clarion coals,	2′ to 3′,	696,000,000	
Brookville bed,	2′ to 4′,	1,627,200,000	
			17,217,400,000

Conglomerate Series:		
Mercer coals, ... 2 to 3′, ...	932,600,000	
Quakertown bed, ... 2′, ...	57,600,000	
Sharon coal horizon, ... 2′ to 3′, . . .	38,400,000	
		1,028,600,000
Total, ...		33,547,200,000

The Upper Barren measures furnish but one workable seam, the Upper Productive measures five beds, the Lower Barren measures three or four coals attaining workable size in parts of three or four counties, the Lower Productive measures eight workable seams, and the Conglomerate series three or four seams, workable over limited areas in the northwestern counties.

Upper Barren Measures.

This series furnishes but one seam of commercial importance, the Washington bed, which attains its best development in Washington and Fayette counties, but is not persistent as a workable seam in any other county. This series of rocks contains (see section) several other seams, but they are usually very thin and of poor quality, although one—the Waynesburg "A" bed — may prove workable over a small area in Fayette county.

Upper Productive Coal Measures.

Waynesburg Bed.—This is a seam of great importance in Greene and Washington counties, attaining also a good thickness in Fayette and Westmoreland, holding the fifth place among the productive coal seams. Professor Stevenson's admirable maps show its depth beneath the surface at almost every cross-road and town in Greene and Washington counties, (see Reports K, KK, KKK.)

Uniontown Bed.—This is locally workable in parts of Fayette and Greene counties. It is of little importance.

Sewickley Bed.—The same remarks apply equally well to this bed, and to the

Redstone Bed, which is also locally workable in Westmoreland and Allegheny counties, with an average thickness of from two to three feet.

Pittsburgh Bed.—This is the best and most valuable seam of the bituminous coal area. It ranges from six to twelve feet in thickness, and according to my estimates contains nearly one third of the available bituminous coal in Pennsylvania. Its most extensive areas are found in Fayette, Washington, Allegheny, Westmoreland, and Greene counties, small areas also occurring in Indiana, Somerset, and Beaver counties. The purity and quality of this coal, and the excellent character of coke made from it.—the famous Connellsville,—render it many times more valuable than any other seam.

In parts of Washington and in Greene county it lies deeply covered beneath a great thickness of overlying measures, but its depth at almost any point can be easily determined from Professor J. J. Stevenson's maps, (Report K and KK.)

Lower Barren Measures.

In Indiana, Somerset, and Butler counties this series contains several beds attaining workable size over limited areas, and in Armstrong and Beaver

counties there is also a small quantity of minable coal in these measures. It will probably be worked principally to supply the local demand.

Lower Productive Coal Measures.

In Fayette and Westmoreland the coals of this series contain a large amount of available coal; in Allegheny county the Freeport coals will furnish a large supply, but they are always of inferior quality. The tonnage of these three counties available from the Lower Productive measures was estimated *en masse*, the data not being sufficient to warrant a finer differentiation.

Millerstown Bed.—This is locally workable in Butler county. It will be mined to meet the local demand.

Freeport Upper Coal.—This bed is workable in parts of fifteen counties. It furnishes some excellent coal, is often a superior coking coal, and in the western counties is always a strong steam and often a good gas coal. A small area of this seam in Clarion county is of a "block" character, and the coal has been used raw in a small furnace (10′ x 33′) to smelt the limestone carbonate ores. This bed ranks third among the productive seams.

Freeport Lower Coal.—A bed of great importance in Jefferson, Indiana, Clearfield, Cambria, Armstrong, Centre, and Allegheny counties, and workable in parts of Beaver, Butler, Elk, Blair, Cameron, Westmoreland, and Fayette counties. It ranks fourth among the productive seams, and will furnish a large supply of good steam, coking, and gas coals, the character varying with the locality.

Kittanning Upper Coal.—Nearly all of the cannel coal in Pennsylvania occurs at this horizon. It is the celebrated "Darlington" bed. The seam often consists partly of cannel and partly of bituminous coal, but is most frequently a bituminous seam of fair quality, attaining workable thickness in parts of Butler, Armstrong, Somerset, (bed "D,") Beaver, (cannel,) Indiana, Jefferson, Elk, and Lycoming counties. It holds the seventh place among the productive seams.

Kittanning Middle Coal.—This locally becomes workable in Butler, Lawrence, Jefferson, Armstrong, Elk, Cameron, and Clarion counties. It will furnish probably one half as much coal as the Kittanning Upper bed.

Kittanning Lower Coal.—In twenty-two counties this bed attains a workable thickness and lies above water-level, favorably situated for mining. The seam lettered "B" in Clinton, Bradford, Lycoming, Tioga, and Sullivan counties has been considered its eastern equivalent, (see Reports HHHH, H^5 and H^6, showing "B" =Lower Kittanning coal.) Along the Allegheny escarpment it is an excellent coking coal, and in the western counties often a good gas coal, and always a strong steam coal. In point of production it probably ranks second only to the Pittsburgh bed; but the Freeport Upper coal may possibly equal or slightly exceed it in the amount of easily accessible coal. It averages from two to four feet in the western, and from three to six feet in the eastern counties.

Clarion Bed.—This is formed in two sub-divisions in some of the western counties, its upper split being known as the "Scrub-grass" coal, (see Reports V, VV, QQ, QQQ.) Its output will probably be applied almost

exclusively to satisfy the local demand. It sometimes furnishes coal of excellent quality but the bed is usually quite thin.

Brookville Bed.—Bed "A" of the Allegheny escarpment counties. It will be about equally productive with the Kittanning Upper seam, but often furnishes a very sulphurous fuel.

Conglomerate Series

Mercer Coals.—The Mercer upper and lower coals are workable over limited areas in Lawrence, Jefferson, McKean, Elk, Mercer, Venango, and Forest (?) counties. Excepting in McKean, where their proximity to market enhances their value, and in Mercer county, where they attain their best development, they are of little importance. In Elk and Jefferson they will yield a considerable tonnage, but in the latter county at least this will be applied almost exclusively to meet the local demand.

Quakertown Coal.—Workable over a small area in Mercer county.

Sharon Coal.—In Mercer county this is a bed of great value, but its available area will be exhausted in the near future. This horizon will furnish a small amount of coal in Crawford and Warren counties, but in the latter county it is thin and of inferior quality. Its available tonnage has been estimated on a most liberal basis.

Area.

The area actually covered by the bituminous coal measures in Pennsylvania is about 9000 square miles. The Upper Productive series extend over but a small fractional portion of this area; the Barren measures cover a considerable area, hiding beneath a thick covering large areas of the coals of the Lower Productive measures, otherwise easily accessible. The limits adopted in making these estimates necessarily compel the exclusion of many such areas in computing the available coal.

Estimates in detail for each county are given in the following tables in alphabetical order. It may appear that in many cases very small areas are assigned to persistent seams occurring over large areas. The explanation of this will be found in the impure or variable character of the bed, or its depth beneath water-level or beneath superimposed measures over a portion of the area. The casual observer is apt to form a favorable opinion of the quality, thickness, and regularity of coal seams not warranted by the actual facts. Finding several banks working on the same bed at different localities in a county or township, at all of which the bed is of fair quality and thickness, he is naturally led to infer that the seam will be found of equal value over all the area he has examined; but he has, perhaps, had no opportunity of examining an equal or greater number of trial openings, at which the bed was found to be *worthless*, for these have all been abandoned, have fallen shut, and the openings are almost obliterated. Unless this fact is kept constantly in view, and the variable nature of most of our bituminous coals (especially the smaller seams), thoroughly appreciated, estimates based on bed measurements made at *working banks* will almost invariably be found to exaggerate the true amount of available coal of marketable quality.

ALLEGHENY COUNTY.

NAME OF BED.	Average coal thickness.	Acres.	Tons.	Sq. miles, 1ft. thick.
Redstone,	2′	32,000	96,000,000	100
Pittsburgh,	10′	112,000	1,680,000,000	1,750
Lower Productive coals,	6′	80,000	720,000,000	750
Total,			2,496,000,000	2,600

ARMSTRONG COUNTY.

Barren Measures,	2′½	6,400	24,000,000	25
Freeport, Upper,	4′	128,000	768,000,000	800
Freeport, Lower,	3′	48,000	216,000,000	225
Kittanning, Upper,	3′	64,000	288,000,000	300
Kittanning, Middle,	3′	32,000	144,000,000	150
Kittanning, Lower,	3′	80,000	360,000,000	375
Clarion coal,	2½′	12,800	48,000,000	50
Brookville,	2½′	6,400	24,000,000	25
Total,			1,872,000,000	1,950

BEAVER COUNTY.

Pittsburgh bed,	8′	800	9,600,000	10
Brush Creek,	3′	16,000	72,000,000	75
Freeport, Upper,	3′	35,200	158,400,000	165
Freeport, Lower,	2½′	12,800	48,000,000	50
Kittanning, Upper,	2′	64,000	192,000,000	200
Kittanning, Lower,	2′	51,200	153,600,000	160
Clarion coal,	2′	6,400	19,200,000	20
Total,			652,800,000	680

BLAIR COUNTY.

Freeport, Upper,	4′	3,200	19,200,000	20
Freeport, Lower,	2′	3,200	9,600,000	10
Kittanning, Lower,	3½′	4,800	25,200,000	26
Brookville,	4′	6,400	38,400,000	40
Total,			92,400,000	96

BRADFORD COUNTY.

Kittanning, Lower ("B,")	4′	4,480	26,900,000	28
Brookville, (Bed "A,")	2′	6,400	19,200,000	20
Total,			46,100,000	48

BUTLER COUNTY.

NAME OF BED.	Average coal thickness.	Acres.	Tons.	Sq. miles, 1 ft. thick.
Lower Barrens,	3′	48,000	216,000,000	225
Millerstown bed,	3′	6,400	28,800,000	30
Freeport, Upper,	4′	70,400	422,400,000	440
Freeport, Lower,	6′	3,200	28,800,000	30
Kittanning, Upper,	3′	83,200	374,400,000	390
Kittanning, Middle,	3′	44,800	201,600,000	210
Kittanning, Lower,	3′	32,000	144,000,000	150
Clarion,	2′	48,000	144,000,000	150
Brookville,	3′	32,000	144,000,000	150
Total,	.....	.....	1,704,000,000	1,775

CAMBRIA COUNTY.

Freeport, Upper,	3½′	89,600	470,400,000	490
Freeport, Lower,	2½′	64,000	240,000,000	250
Kittanning, Lower, ("B,")	3½′	128,000	672,000,000	700
Brookville, ("A,")	3′	83,200	374,400,000	390
Total,	.....	.....	1,756,800,000	1,830

CAMERON COUNTY.

Kittanning, Middle,	3′	3,200	14,400,000	15
Kittanning, Lower,	3′	9,600	43,200,000	45
Clarion coal,	3′	16,000	72,000,000	75
Total,	.....	.....	129,600,000	135

CENTRE COUNTY.

Freeport, Upper,	4′	12,800	76,800,000	80
Freeport, Lower,	4′	32,000	192,000,000	200
Kittanning, Lower,	4½′	51,200	345,600,000	360
Brookville bed,	3′	44,800	134,400,000	210
Total,	.....	.....	748,800,000	850

CLARION COUNTY.

Freeport, Upper,	3½′	3,200	16,800,000	17½
Freeport, Lower,	4′	3,200	19,200,000	20
Kittanning, Middle,	2′	25,600	76,800,000	80
Kittanning, Lower,	3′	96,000	432,000,000	450
Clarion,	2′	32,000	96,000,000	100
Brookville,	2½′	12,800	48,000,000	50
Total,	.....	.....	688,800,000	717½

CLEARFIELD COUNTY.

NAME OF BED.	Average coal thickness.	Acres.	Tons.	Sq. miles, 1 ft. thick.
Freeport, Upper,	4′	22,666	133,600,000	139
Freeport, Lower,	4′	64,000	384,000,000	400
Kittanning, Lower,	4½′	89,600	604,800,000	630
Brookville,	3′	64,000	288,000,000	300
Total,	.....	....	1,410,400,000	1,469

CLINTON COUNTY.

Kittanning, Lower, ("B,")	3′	9,600	43,200,000	45
Brookville, ("A,")	2′	6,400	19,200,000	20
Total,	.....	....	62,400,000	65

CRAWFORD COUNTY.

Sharon Horizon,	3′	3,200	14,400,000	15

ELK COUNTY.

Freeport, Upper,	5′	3,200	24,000,000	25
Freeport, Lower,	5′	6,400	48,000,000	50
Kittanning, Upper,	2½′	16,000	60,000,000	62½
Kittanning, Middle,	2½′	28,000	105,000,000	112½
Kittanning, Lower,	3′	48,000	216,000,000	225
Clarion,	2′	57,600	172,800,000	180
Mercer coals,	3′	64,000	288,000,000	300
Total,	.....	.....	913,800,000	955

FOREST COUNTY.

Sharon and Mercer Horizons, ?	2′	1,280?	3,800,000?	4?

FAYETTE COUNTY.

Upper Barrens,	3′	25,600	115,200,000	120
Waynesburg,	5′	35,200	261,000,000	275
Uniontown,	3′	48,000	216,000,000	225
Sewickley,	3′	48,000	216,000,000	225
Redstone,	3′	25,600	115,200,000	120
Pittsburgh,	12′	160,000	2,880,000,000	3,000
Lower Productive beds,	4′	128,000	768,000,000	800
Total,	.....	.....	4,574,400,000	4,765

GREENE COUNTY.

NAME OF BED.	Average coal thickness.	Acres.	Tons.	Sq. miles, 1 ft. thick.
Waynesburg,	5′	160,000	1,200,000,000	1,250
Uniontown,	2′	32,000	96,000,000	100
Sewickley,	3′	48,000	216,000,000	225
Pittsburgh,	8′	96,000	1,152,000,000	1,200
Total,			2,664,000,000	2,775

INDIANA COUNTY.

Pittsburgh bed,	7½′	12,800	144,000,000	150
Barren Measures,	4′	32,000	192,000,000	200
Freeport, Upper,	4′	192,000	1,152,000,000	1,200
Freeport, Lower,	2½′	64,000	240,000,000	250
Kittanning, Upper,	2′	32,000	96,000,000	100
Kittanning, Lower, ("B,")	3′	64,000	288,000,000	300
Brookville,	2½′	19,200	72,000,000	75
Total,			2,184,000,000	2,275

JEFFERSON COUNTY.

Freeport, Upper,	3′	48,000	216,000,000	225
Freeport, Lower,	4′	160,000	960,000,000	1,000
Kittanning, Upper,	3′	19,200	86,400,000	90
Kittanning, Middle,	3′	16,000	72,000,000	75
Kittanning, Lower,	2′	80,000	240,000,000	250
Brookville,	3′	44,800	201,600,000	210
Mercer coals,	3′	48,000	216,000,000	225
Total,			1,992,000,000	2,085

LAWRENCE COUNTY.

Kittanning, Middle,	3′	48,000	216,000,000	225
Kittanning, Lower,	2′	32,000	96,000,000	100
Clarion,	2′	12,800	38,400,000	40
Mercer, Upper,	3′	6,400	28,800,000	30
Mercer, Lower,	2′	6,400	19,200,000	20
Total,			398,400,000	415

LYCOMING COUNTY.

Kittanning, Upper, ("D.")	4′	3,200	19,200,000	20
Kittanning, Lower, ("B,")	3½′	6,400	33,600,000	35
Total,			52,800,000	55

MERCER COUNTY.

NAME OF BED.	Average coal thickness.	Acres.	Tons.	Sq. miles. 1 ft. thick.
Kittanning, Lower,	2½′	3,200	12,000,000	12½
Clarion,	3′	16,000	72,000,000	75
Mercer, Upper,	2½′	25,600	96,000,000	100
Mercer, Lower,	2½′	64,000	240,000,000	250
Quakertown,	2′	19,200	57,600,000	60
Sharon,	3′	3,200	14,400,000	15½
Total,			492,000,000	513

McKEAN COUNTY.

Clarion coal,	3′	3,200	14,400,000	15
Mercer coals,	2′	9,600	28,800,000	30
Total,			43,200,000	45

POTTER COUNTY.

Kittanning, Lower, ("B,")	3′	3,200	14,400,000	15
Brookville, ("A,")	2′	3,200	9,600,000	10
Total,			24,000,000	25

SULLIVAN COUNTY.*

Kittanning, Lower, ("B,"	3′	2,560	11,520,000	12

SOMERSET COUNTY.

Pittsburgh,	8′-10′	(Platt.)	42,000,000	44
Lower Barrens,	6′	41,600	374,400,000	390
Freeport, Upper,	4′	51,200	307,200,000	320
Kittanning, Upper, ("D,")	4	80,000	480,000,000	500
Kittanning, Lower, ("B,")	3½′	64,000	336,000,000	350
Brookville, ("A,")	3′	51,000	230,400,000	240
Total,			1,770,000,000	1,844

TIOGA COUNTY.

Kittanning, Lower, ("B,")	6′	12,800	115,200,000	120
Brookville, ("A,")	3′	3,200	14,400,000	15
Total,			129,600,000	135

*Anthracite coal.

VENANGO COUNTY.

Name of Bed.	Average coal thickness.	Acres.	Tons.	Sq. miles, 1 ft. thick.
Kittanning, Lower,	$2\frac{1}{2}'$	3,200	12,000,000	$12\frac{1}{2}$
Clarion,	$2'$	6,400	19,200,000	20
Brookville,	$2'$	3,200	9,600,000	10
Mercer coals,	$2\frac{1}{2}'$	3,200	12,000,000	$12\frac{1}{2}$
Total,	.....	.....	52,800,000	55

WASHINGTON COUNTY.

Washington coal,	$3\frac{1}{2}'$	128,000	672,000,000	700
Waynesburg,	$3'$	128,000	576,000,000	600
Pittsburgh,	$6'$	320,000	2,880,000,000	3,000
Total,	.....	.....	4,128,000,000	4,300

WESTMORELAND COUNTY.

Waynesburg,	$3'$	19,200	86,400,000	90
Redstone,	$3'$	25,600	115,200,000	120
Pittsburgh,	$8'$	137,600	1,651,200,000	1,720
Lower Productive coals,	$4'$	96,000	576,000,000	600
Total,	.....	.....	2,428,800,000	2,530

WARREN COUNTY.

Sharon Horizon,	$2'$	3,200	9,600,000	10

The reports already published by the Second Geological Survey of Pennsylvania, descriptive of the bituminous coal area, now number twenty-one octavo volumes, besides two volumes and one atlas on the fossil flora of the coal measures, and a special volume on the coke industry of the Youghiogheny. Nearly all of these reports are illustrated by geologically colored county maps on a scale of two miles to one inch. Besides this series of maps, there is another series now in preparation on a scale of six miles to one inch, which, when completed, will be published in atlas form. At some time in the near future it is my intention to construct from these maps an accurately colored map of the bituminous coal area. I had hoped to illustrate this paper with such a map, drawn and colored to show the relative areas of the principal productive horizons, but as the maps of Cambria, Somerset, Clearfield, and Centre counties are not yet completed, I have thought best to wait until all of these are finished and approved by the State geologist. The estimates of areas and tonnage in these four counties probably contain larger errors than any of the remaining districts, as it is impossible in the absence of the geologically colored maps to accurately limit the productive areas.

The tables showing the county tonnage develop the fact that each county contains an average of but four or five accessible seams of commercial importance.

Two counties contain nine important seams.
Two counties contain eight important seams.
Four counties contain seven important seams.
Two counties contain six important seams.
Two counties contain five important seams.
Seven counties contain four important seams.
Two counties contain three important seams.
Seven counties contain two important seams.
Three counties contain one important seam.

If the counties are tabulated according to their available tonnage we find Fayette standing at the head, followed by Washington, Greene, Allegheny, Westmoreland, Indiana, Jefferson, Armstrong, Somerset, Cambria, Butler, Clearfield, etc., but we must not lose sight of the fact that this may not be the order in which they stand in reference to their present value and importance as coal-producing areas. Mr. Joseph S. Harris, in his able report on the Philadelphia and Reading Coal and Iron Company's property, has clearly shown that the *present money value* of any coal area depends largely upon the time at which development is commenced, the time elapsing before its maximum output is reached, and the time occupied in exhausting the tract, the present money value rapidly decreasing as any one of these variables is increased.

The same principal is undoubtedly applicable to the bituminous coal areas. Those areas, so situated that their development can be economically prosecuted at present or in the near future, possess a much greater relative present value than areas not so favorably situated; thus some of the counties forming the northern rim of the bituminous coal area are, because of their proximnity to the northern markets, and their present development, of much greater present importance as coal producers than centrally located areas containing many times as much available coal.

The amount of coal excluded from these estimates on account of poor quality, depth beneath water-level or beneath overlying rocks is very great. As these estimates prove the existence of an amount of easily accessible coal of good quality sufficient to supply the demand for several centuries, estimates of the tonnage of these impure seams or inaccessible areas would be of no practical value to the present generation.

NOTE.—The coals named after the letters A and B, in Clinton, Lycoming, Tioga, Bradford, and Sullivan counties, have been classed above as Lower Productive coals, finding their equivalents in the Kittanning Lower and Brookville beds. The identification of these latter with beds A and B of the Allegheny mountain escarpment, is shown by Mr. William G. Platt, in Reports H^5, H^6.

Prof. I. C. White has more lately suggested that the coals of these northeastern counties may belong to the Conglomerate series (see report on Susquehanna and Wayne.) As I am not convinced that enough is known about these coals to prove the correctness of Prof. White's suggestion, I have adhered to the old classification.

BLAST FURNACES.

TABLE *showing the characteristics, production, etc., of Blast Furnaces in Pennsylvania, compiled from operator's returns to the Bureau, for the year ended December 31, 1881.*

NAME OF FURNACE OR WORKS.	Number of stacks.	Height of stacks—feet.	Diameter of bosh in feet.	Number of tuyeres.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of iron produced.	REMARKS.
Adams county.									
Chestnut Grove,	1	31	8.6	1	140	14	$2,132 00	650.00	Charcoal, cold blast.
Allegheny county.									
Eliza,	1	60	16	4	365	158	120,533 49	47 019.12	Hot blast, coke.
Lucy, "A,"	1	69	14	4					
"B,"	1	75	20	7	353	310	168 601 87	69,090.08	Hot blast, coke.
Shoenberger, "1,"	1	75	20	6	270				
"2,"	1	62	13 6	4	354	75	33,424 34	18,285.00	Hot blast, coke.
Isabella Furnace Company,	2	62	14.6	4					
Clinton,	1	75	20	7	365	300	175,000 00	54 498.00	Hot blast, coke.
Edgar Thomson furnace, A,	1	45	12	5	3 0	41	26 462 65	12 731.00	Hot blast, coke.
Edgar Thomson, B, C, D, E,	4	80	20	8	365	750	409,939 33	*122 695.18	* Bessemer. †Spiegeleisen,
Soho,	1	65	18	7	322	151	90 000 00	†9,003.15	Hot blast, coke, D, E, furnaces in course of construction.
								36,700.00	
Armstrong county.									
Rebecca,	1	65	16	6	295	63	95,131 93	17,036.00	Hot blast, coke.
Bedford county.									
Hopewell,	1	31	8 6	2	180	60	20,500 00	820 00	W. B. charcoal.
Kemble,	2	60	15	6	124	52	75,845 05	14,500.00	Hot blast, coke.
		60	16	4	365				
Berks county.									
Bechtelsville,	1		16		180	50		6,104.00	Hot blast, anthracite and coke.
Keystone of Reading,	2	50	15	5	365	52	30 000 00	16,793 00	Hot blast, anthracite.
Monocacy,	1	50	13	6	305	40	18,000 00	6,185.00	Hot blast, anthracite.
Moselem,	1	59	12	6	245	23	6,806 56	3 827.10	Hot blast, anthracite.

BLAST FURNACES—Continued.

NAME OF FURNACE OR WORKS.	Number of stacks.	Height of stacks—feet.	Diameter of bosh in feet.	Number of tuyeres.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of iron produced.	REMARKS.
Robesonia,	1	50	14	6	365	61	$25,773 79	9,000.00	Hot blast, anthracite.
Rockland,	1	30	8 6	1					Out of blast.
Temple,	1	55	14	6	254	34	15,143 59	5,733.00	Hot blast, anthracite.
East Penn, (P. & R. C. & I. Company,)	2	45½	12 2						Out of blast.
Clymer Iron Company, Mt. Laurel,	1	50	11	3	172	31	10,218 80	2,336 00	Hot blast, anthracite.
Do. do. do. Oley,	1	30	8	1	365	18	5 539 24	1,800.00	Cold blast, charcoal.
Lcesport Iron Works,	1	58	15	6	295	47	16,570 23	10,766.00	Hot blast, anthracite.
Joanna,	1	30	8	1		9	12,000 00	1,240.00	Cold blast, charcoal.
Reading Iron Works,	2	55	16	8	365	114	38 353 35	13,860.00	Hot blast, anthracite and coke.
No. 2,		55	15	5	68				
Henry Clay,	2				365	70		15,174.00	
Hampton,	1	25	8	3	81	21	1 586 63	254.00	Hot blast, charcoal.
Keystone, (Birdsboro',)	3	48	13	6	365	127	37,089 33	16,801.00	Hot blast, anthracite.
		55	15	6	55				
		60	16	6	236				
Hopewell,	1	30	7	1	300	75	25.000 00	1.000 00	Cold blast, charcoal.
Topton,	1	55	16	5	311	38	15,030 00	7.817 00	Hot blast, anthracite.
Kutztown,	1	54	15.6	4	365	32	15,953 65	7,145 00	Hot blast, anthracite.
Hopewell,	1	30	7	1	300	60	25,000 00	1,000 00	Cold blast, charcoal.
Blair county.									
Blair Iron and Coal Company,	1	41	9 8	3	365	64	31.224 62	6 246 00	Hot blast, coke.
	1	45	10	3	365	35	17,795 59	5,769.00	Hot blast, coke.
	2	59	12	4	365	117	57,382 82	21,897.00	Hot blast, coke.
		51	11	4					
Elizabeth,	1	32	7	2	335	50	30.200 00	2 200.00	Hot blast, coke.
Hollidaysburg and Gap Iron Works,	1	48	10	4	300	200	66,049 24	7,259.00	Employees and wages includes mining of ore.
Juniata,	1	28	8.6	3					Out of blast and for sale.
Rodmen,	1	61	14	6	365	65	30,681 00	9,006 00	Hot blast, coke.
Sarah,	1								Out of blast.
Springfield,	1	32	8.6	2	340	110	27,750 00	1,825.00	Charcoal.
Mount Etna,	1	33	8.6	2					Out of blast since 1877.
Rebecca,	1	30	8 6	2				1,800 00	Charcoal.
Allegheny,	1	32	9 6	3	227	31	12,500 00	1,708. 0	Hot blast, coke.

Bucks county.									
Durham Iron Works,	1	75	20	7	349	324	149,296 72	27 540.00	Employees and wages includes ore miners.
Cambria county.									
Cambria Iron Works,	7	...	...	..	365	564	266,171 00	115 860.00	One furnace out of blast; hot blast, coke.
Carbon county.									
Carbon Iron and Pipe Works,	3	52	14	6	365	116	50,000 00	21,502.00	Hot blast, anthracite.
		54	16	6					
		65	16	8					
Centre county.									
Eagle,	1	...	8.6	.	270	15	3,246 00	1,600.00	Cold blast.
Bellefonte Iron Works,	1	32	8	1	340	10	5.109 00	3,406.00	Cold blast, charcoal.
Howard,	2	31	8	1	310	15	8,328 36	2 000.00	Cold blast, charcoal.
		33	8	1					
Chester county.									
Isabella,	1	30	7.3	1		6	351 00	127.00	
Phœnix Iron Works, No. 1,	3	58½	15	6	365	113	48,609 10	25,772.01	Hot blast, coke and anthracite coal.
No. 2,	..	59	15	5	74				
No. 3,	..	60	14	6	186				
Clarion county.									
Red Bank,	1	42	12	4	300	300	130,000 00	6,791.00	
Clinton county.									
Washington Iron Works,	1	...	.	..		..	.....	..	Out of blast.
Roland,	1	36	10	3	74	17	1,716 80	460.00	Hot blast, coke.
Columbia county.									
Irondale,	2	36	12	3	365	149	65,000 00	6,964.00	Hot blast, anthracite coal.
		36	14	5					
Bloom,	1	48	14	4	270	175	15,000 00	7,251.00	Hot blast, anthracite. Labor includes ore miners.
Cumberland county.									
Big Pond,	1	...				...		..	Out of blast.
Carlisle Iron Works,	1	27	8-4	2	310	285	70,000 00	3,600.00	Hot blast, charcoal. Labor includes wood choppers.
Dauphin county.									
Harrisburg,	1	30	13	3	74	20	1,613 20	926.00	Stack taken down July, 1881.
Lochiel Rolling Mill Company,	1	54	13	5	365	42	19,456 95	6,828.10	Coal and coke, hot blast.
Conewago,	1	45.5	13	4	330	114	50,000 00	4.457 10	Anthracite and coke, hot blast.
Wister,	1	60	14	.	252	50	25,065 06	9.752.00	Hot blast.
Paxton,	2	...	16		365	105	69,450 07	21,415 00	
			14						
Pennsylvania Steel Works,	2	60	14	6	210	289	70 000 00	30,000.00	Hot blast, coke and anthracite.
		76	17.6	6	300				
Cameron,	1	47½	13.6	3		...		.....	Out of blast in 1881.
Swatara,	1	50	11.6	4	340	33	23,461 30	7,401.00	Hot blast, anthracite.
Delaware county.									
Chester Rolling Mills,	1	70	16	7	40	84	5,500 00	2,083.00	Anthracite coal and coke, hot blast.

BLAST FURNACES—Continued.

NAME OF FURNACE OR WORKS.	Number of stacks.	Height of stacks—feet.	Diameter of bosh in feet.	Number of tuyeres.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of iron produced.	REMARKS.
Erie county.									
Erie,	1	59	13.6	7	...	...	.....	.....	Not in operation during 1881.
Fayette county.									
Dunbar,	2	77	19.6	6	212	155	$64,168 81	24,824.00	Coke, hot blast.
Lemont,	1	65	15	7	350	42	29,035 90	8,850 15	Coke, hot blast.
Fairchance,	1	44	12.6	4	325	250	21,924 91	5 148.15	Coke, hot blast.
Fayette Coke and Furnace Company,	1	50	11	3	80	25	..	615 00	Coke, hot blast.
Franklin county.									
Carrick,	1	36	8	1	330	19	6,500 00	1,350 00	Cold blast, charcoal.
Franklin,	1	32	8.6	1	300	20	..	1,176 00	Cold blast, charcoal.
Falling Spring,	1	40	9	3	300	20	6,040 00	1,971.00	Charcoal.
Mont Alto Iron Works,	1	45	9.4	4	225	249	72 092 39	2,551.10	Warm blast charcoal, employees, and wages, includes ore miners and others.
Huntingdon county.									
Barree Iron Works,	1	32	8 9	3	180	56	18,000 00	1,100.00	Hot blast, charcoal.
Lucy,	1	40	7.6	3	113	62	5 150 00	810.00	Hot blast, coke. Went into blast October 10, 1881.
Rockhill,	2	65	17	5	267	101	137.763 70	17,736.00	Hot blast, anthracite and coke.
Greenwood Works,	1	33	9.4	1	365	101	31,353 28	2,222.00	Cold blast, charcoal.
Lancaster county.									
Chestnut Hill Iron Ore Company, "2,"	2	44	17 3	6	150	75	35 420 00	7,700.00	Hot blast, anthracite. One furnace abandoned after twelve days' work.
"3,"	..	60	13.6		335				
Chickies,	2	43	12	6	365	208	70,000 00	9,847 00	Hot blast, coke and anthracite.
Cordelia,	1	37	12	3	330	30	10 565 00	5,700.00	Hot blast, coke and anthracite.
Donegal,	1	38	12	3	365	28	14,300 00	5,300 00	Hot blast, coke and anthracite.
Marietta, "1,"	2	50	12.6	3	323	33	11,765 92	4,982.00	Hot blast, coke and anthracite.
"2,"		37	12 6	3					
Mount Hope,	1	44	9	3			.	3 000.00	Hot blast, charcoal.
St. Charles and Henry Clay,	2	51	14	6	315	74	47,716 45	8 304 00	Hot blast, anthracite.
		57	12	3	180		..	2.500.00	
Vesta,	1	60	14	5	270	34	....	3,503.00	Furnace remodeled, capacity increased.
Conestoga,	1	33	11	3	365	34	11,691 08	6,010 00	Hot blast, anthracite.

Lawrence county.									
Clara,	1	65	16	7	180	38	25,000 00	8,000.00	Remodelled with latest improvements.
Etna Iron Works, (limited,)	2	57	14 6	4	258	60	34 501 10	17,416.00	Hot blast, coke.
		57	14 10	4	337				
Hope,	1	23	8 6	1		12		890 00	Cold blast, charcoal.
Neshannock,	1	60	16	8	300	69	29,307 50	19,304.00	Hot blast, coke.
Rowena,	1	77	20	7					Not in operation during 1881.
Sophia,	1	65	16	8					
Wampum,	1	50	12	1	235	22	13,911 57	2,922 00	Hot blast, coke.
Lebanon county.									
Lebanon Valley,	1	46	12 3	4	365	29	14 200 00	7 454 00	Hot blast, two thirds coal, one third coke.
Sheridan,	2	52	13	6	200	69	23 154 62	9,179.00	Hot blast, anthracite.
		55	16	6					
Cornwall,	1	31	8.6	3	318				
Bird Coleman's,	2	52	15	6	266	124	60,000 00	17,315.00	One cold blast and charcoal, and three hot anthracite and coke.
		62	15	6	154				
Donaghmore,	1	41	14	4	365				
Lehigh county.									
Allentown Iron Works,	5	53	14	6	345	140	62,000 00	23 373.00	Hot blast, anthracite.
		60	16	9					
Crane Iron Works,	4	60	17	7	302	270	170,000 00	53 953.00	Hot blast, anthracite.
	1	75	18	8					
Emaus,	1	65	16	6	110	40		3 120.00	Went in blast September 12, 1881.
Thomas Iron Company,	2	58	16	6	281	55	25,000 00	19,440 00	Hot blast, anthracite.
		58	16	7					
Macungie,	1	56	16	6	304	32	13 077 72	8 035.00	Hot blast, anthracite.
Thomas Iron Works,	8	55	16	8	311	320	170,885 00	99,514.10	Hot blast, anthracite.
		56	18						
Lehigh Iron Works, "1,"	2	51	16	6	365	70	30,563 00	18 672 00	Hot blast, anthracite.
" 2,"		60	17	6					
Coplay Iron Works,	1	60	14	6					
	2	55	16	6	289	109	48 743 11	23 332 10	Hot blast, anthracite.
Allentown Rolling-Mill Company,	2	60	16	6	349	71	30,091 83	22,638 01	Hot blast, anthracite.
Lycoming county.									
Lycoming,	1	45	12	3					Out of blast since 1874.
Mercer county.									
Allen,	1	50	12	4					Out of blast for four years.
Douglass,	2	60	15	8	365	61	37,308 06	19 716 08	Hot blast, coke and block coal.
			16						
Sharon,	1	46	11	4	102	31	6 500 00	2.764.00	Hot blast, coke and block coal.
Westerman,	2	48	14		269	64	39 000 00	14 512.09	Hot blast, coal and coke.
Shenango,	2								Not in blast during 1881.
Mount Hickory,	2	50	14	6	365	50	26,000 00	15 646 00	Hot blast, coal and coke.
Sharpsville,	1	65	13	5					Out of blast for six years; re-building to go into operation May, 1882.
Stewart,	2	50	13	5	365	106			
		55	14	6	223				
Mabel,	2	50	14	7	365	50	27,000 00	18,000.00	Hot blast, Connellsville coke.

BLAST FURNACES – Continued.

NAME OF FURNACE OR WORKS.	Number of stacks.	Height of stacks—feet.	Diameter of bosh in feet.	Number of tuyeres.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of iron produced.	REMARKS.
Mifflin county.									
Emma,	1	42	9	3	300	24	$8 700 00	2,861.00	Hot blast, coke.
Glamorgan,	2	54	14.6	5	227	97	25,817 27	11,215.00	Hot blast, coke and anthracite.
		48	13	4					
Montgomery county.									
Pottstown Iron Company,	1	65	16	7	365	58		18,498.00	Hot blast, anthracite and coke.
Plymouth Furnaces,	2	55	13	4	242	110	43,970 00	21,700 00	Hot blast, anthracite and coke.
			14						
Lucinda,	1	40	15	3					
Montgomery,	1	50	14	6	360	36	19,200 00	11,000 00	Hot blast, anthracite.
Norristown Iron Works,	1	55	16	7					Out of blast.
Swede, (Philadelphia and Reading Coal and Iron Co.,)	2								Dismantled; in process of reconstruction.
Warwick,	1	55	16	6	365	72	30,000 00	20,501 12	Hot blast, anthracite and coke.
Montour county.									
Columbia,	2	39	14	4	238	79	29 119 00	7,401 00	Hot blast, anthracite.
		50	14	4					
Danville,	2	39	14	4	315	32	16 740 00	6 300.00	Hot blast, anthracite.
		60	18	7					
Montour Iron and Steel Company,	2	50	15	6	142	46	21,005 81	8,085 00	Hot blast, anthracite.
Northampton county.									
Coleraine Iron Works,	2	58	17.6	6	269	64		26.000.00	Hot blast, anthracite.
Glendon Iron Works,	4	81	18	7	365	400	270,000 00	69,560.00	Hot blast, anthracite.
		72	18	7					One additional furnace rebuilding.
		63	16	5					
		47	15	5					
Keystone,	1	65	16	5	280	41	22.208 46	10 220.00	Hot blast, anthracite.
Lucy,	1	58	14	5	365	45	25 000 00	9.000 00	Hot blast, anthracite.
Bethlehem Iron Company, 1,	1	62	16	4	365			102 872.08	Anthracite and bituminous coal and coke.
2,	1	70	17 6	5					Total number of employees in all departments, including steel, 2,900. Total amount paid in wages in all departments, $1,552,883 74.
3,	1	49	13	3					
4,	1	70	18 6	4					

5,	1	70	18.6	4					
6,	1	70	17.6	4					
7,	1	65	19.6	5					
8,	1	65	16	4	. .	.	. . . . .	. . . . .	Northampton, (leased.)
Northumberland county.									
Chulasky,	1	42	14	4	360	28	12,667 44	6,124.00	Hot blast, anthracite.
Frances,	1	60	18	. .	. .	.	. . .	. . .	Out of blast since 1880.
Perry county.									
Duncannon,	1	60	15	5					Not in operation.
Marshall,	1	60	13	6	325	48	20,175 00	10,150.00	Hot blast, coke and anthracite.
Philadelphia.									
S. Robbins & Son,	1	58	14	5	. . .	.	. . . . .	. . . . .	Out of blast.
Schuylkill county.									
Jefferson,	1	33	8	2	330	9	5,392 79	1,507.00	Cold blast, charcoal.
Pottsville Iron and Steel Company,	3	50	12	4	365	113	42,735 49	22,673.00	Hot blast, anthracite.
		50	13.6	6					
		55	15	4					
Port Carbon, (Philadelphia & Reading Coal and Iron Co.,)	1	65	15.6	. .	. .	. .	. . . . .	. . . . .	Out of blast.
St. Clair, (Philadelphia and Reading Coal and Iron Co.,)	1								Dismantled.
Ringgold,	1	52	14.6	5	153	32	6,454 97	3,023.00	Hot blast, anthracite.
Tioga county.									
Tioga Iron Works,	1	45	10	3	. .	. . .	. . . .	. . . . .	Out of blast.
Union county.									
Union,	1	50	15	4	365	31	11 168 00	4,200.00	Hot blast, anthracite.
Westmoreland county.									
Charlotte,	1	65	16.6	6	300	56	34,767 10	16,936.00	Hot blast, coke.
York county.									
Aurora,	1	50	12	4	212	33	12,204 45	4,114.00	Out of blast since July, 1881.
York,	1	32	9	1	.	.	. .	. . . . .	Not in blast since 1874.

AN EXHIBIT OF THE CAPACITY OF BLAST FURNACES THAT HAVE NOT MADE RETURNS.

NAME OF FURNACE OR WORKS.	COUNTY.	Number of stacks.	Height of stacks feet.	Diameter of bosh.	Capacity—tons.
Manchester,	Allegheny,	2	45	12	15.000.00
Mahoning,	Armstrong,	1	40	10.6	4,500.00
Stewardson,	do.	1	43½	11	4 000.00
Powelton,	Bedford,	2	70	18	25.000.00
Maiden Creek,	Berks,	1	33	9	1,600.00
Union,	do.	1	28	9	2 000.00
East Penn,	Carbon,	1	28	7.6	2 000.00
Hecla,	Centre,	1	32	8.6	2,000.00
Pine Grove,	Cumberland,	1	45	9.6	5 000.00
South Mountain Mining and Iron Company,	do.	1	60	14	12,000.00
Louise,	Dauphin,	1	40	11	5.000.00
Dauphin,	do.	1	40	11	5,000.00
Richmond,	Franklin,	1	36	9.6	5,500.00
Pennsylvania,	Huntingdon,	1	43	9.6	3,000.00
Lackawanna,	Lackawanna,	5	.67	20.6	
Do.	do.	.	65	17	150,000.00
Do.	do.		70	17 & 19	
Little Pet,	Lawrence,	1	40	9	4,000.00
Lebanon,	Lebanon,	2	50	14	
Do.	do.	. .	55	16	20,000.00
Fannie,	Mercer,	1	51½	13 6	14.000.00
Keel Ridge,	do.	1	55	13.8	12,000.00
Spearman,	do.	2	50	14	36,000.00
Wheatland,	do.	3	46	12	
Do.	do.	1	46	9	30,000.09
Edgehill,	Montgomery,	1	63	17	15.000 00
Elizabeth,	do.	1	50	16	10.000.00
Merion,	do.	1	48	13	10,000.00
William Penn,	do.	3	50	14	
Do.	do.	. .	40	12.6	18,500.00
Do.	do.	. . .	35	12	
Saucon,	Northampton,	2	50	16	
Do.	do.	. . .	60	16	25,000.00
Stanhope,	Schuylkill,	1	33	10	5.200.00
		41	. .	. . . .	441,300.00

RECAPITULATION.

Number of establishments to whom blanks were sent,		176
Number returned,	151	
Number not responding,	25	
Total,		176
Number of stacks reported in blast,	205	
Number of stacks reported out of blast,	30	
Total reported,	235	
Number of stacks from which no report has been received,	41	
Total,	276	

PRODUCTION, ETC.

Total production of pig iron per 205 stacks returned, tons,		1,837,661.13
Estimated capacity of 41 stacks not reported, tons,		441,300.00
Total tons,		2,278 961.13
Total number of employees returned,	11,360	
Estimated number of employees at stacks not reported,	2,500	
Total,		13,860
Average, number of days worked,		288
	Tons.	
Amount of wages reported paid in production of,	1,652.409.10	$4,893,661 39
Estimated wages paid in production of, (reported,)	185,252.00	553,903 48
Estimated wages on tonnage of furnaces not reported,	441,300.00	1,318,391 95
Total,	2,278 961.10	$6,765,956 82
Average amount per ton paid in wages,		$2 96

ROLLING-MILLS.

NAME OF WORKS.	Number of puddling furnaces.	Number of heating furnaces.	Number of trains of rolls.	Number of nail machines.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	PRODUCT. Number of tons of iron.	PRODUCT. a Number of kegs (100 lbs.) of nails.	REMARKS.
Allegheny county.										
American Iron Works,	76	20	12	63	307	2,800	$1,500,000 00	60,000	a 79,878	Bar, hoop, sheet, plate iron, and nails.
Anchor Nail and Tack Works,	22	4	4	96	280	485		8,630	a 154,000	Nails and tacks.
				* 65						* Tack machines.
J. W. Friend & Co.,	16	4	3			84		7,000		Muck bar.
Keystone Rolling-Mill,	26	5	4			250		10,000		Guide, skelp, and plate iron.
Pennsylvania Iron Works,	16	8	5			151		6,094.16		Sheet, skelp, and bar.
Solar Iron Works,	21	5	5		295	250	160,000 00	10,000		Hoop and band iron, and cotton ties.
Union Iron Mills,	31	13	7		310	969	532,000 00	39,000		Beams, channel, angle, and bar.
Moorehead Brothers & Co.,	24	12	5	48	300	200		11,159.12	a 28,600	
Star Iron Works,	20	6	5		275	225	162,558 30	8.700		Hoops and horse-shoe iron.
Pittsburgh Forge and Iron Company,	31	6	5			440	222,821 80	14,423.09		Bar iron, bolts, nuts, rivets, and washers.
Glendon Rolling-Mill,		10	5	*13	310	340	186,893 65	22,000		* Spike machines. Square rods.
Wayne Iron and Steel Works,	28	8	4		260	440	225,000 00	10,000		Bar and plate.
Sligo Rolling-Mills,	34	10	5		292	500	266,497 34	14,400		Bar, plate, sheet, and boiler iron.
Etna Iron Works,	27	9	5		285	300	300,000 00	14.000		Bar and plate iron.
Juniata Iron and Steel Works,	29	15	8	91		525	306,164 65	a 144,555		Nails, sheet, and plate iron, and steel.
								15,904		Horse and mule shoes, and toe-calks.
A. M. Byers & Co.,	26	4	4		300	600		16,500		Wrought iron steam, water, gas, and oil pipes.
Wilson, Walker & Co.,	20	4	4		300	250	140,000 00	12,675		Bar, guide, and plate iron.
Oliver Brothers & Phillips—										
Tenth Street Mills,	32	8	5		300	550	307,822 12	27,000		Bar, rod, and specialties.
Fifteenth Street Mills,	31	8	5		290	350	204,028 40	15,000		Bar, rod, and plate.
Lower Mills,	42	7	4		300	400	330,000 00	25,000		Skelp, bar, band, and rods.
Clinton Iron and Nail Works,	52	9	6	46	300	367	221,056 70	15,700		Bar and sheet iron.
Soho Iron Mills,	17	14	5		290	650	275,000 00	10,000		Black and galvanized sheet iron and plates.
Millvale Iron Works,	25	16	8		293	635	319,403 80	24,041		*Rotary puddling furnaces. Plate, bar, skelp, and merchant iron.
	* 10									
United States Iron and Tin-Plate Works,	3	2	4		280	148	86,000 00	3,154		Fine sheet iron and charcoal blooms.
McKeesport Iron Works,	12	4	6		300	397	236,000 00	6,000		Sheet iron.

Armstrong county.									
Kittanning Rolling-Mill,	24	3	1		242	125	49,691 99	6,184.15	Muck bar.
Leechburg Iron Works,	6	2	2		255	125	84,600 00	3,040	Sheet iron.
Apollo Iron Works,	7	6	2		294	244	120,000 00	3,000	Sheet iron. Have five charcoal fires.
Beaver county.									
Beaver Falls Rolling-Mill,	12	2	2		240	93	90,000 00	6,000	Merchant bars.
Berks county.									
Keystone Iron Works,	7	2	1		280	85	38,722 74	3,062	Plate iron.
William McIlvane & Sons,	6	3	2			150	62,000 00	5,000	Boiler plates.
Reading Bolt and Nut Works,		2	1		310	200	73 536 25	2,931	Bar, bolt, rod, band, and rivet iron.
Pine Iron Works,		2	1		250	48	28,180 37	2,793	Boiler plate.
Blandon Iron Works,	11	2	3		285	109	54,743 38	4,668	Band, hoop, and skelp iron.
Reading Iron Works—Rolling-Mill,	11	4	3	26	258	200	78,903 55	6,125.15	Skelp iron.
Sheet Mill,	18	4	3		250	255	113,583 80	8,896	Plate.
Gibraltar Iron Works,		1	1		300	12	7,000 00	1,000	Boiler-tube iron.
Anchor Brand Nail Works,	11	4	2	104	250	412	179,483 72	*a* 191,249	Muck, bar, and nail plate.
								12,255.18	
Philadelphia and Reading Coal and Iron Company,	12	10	4		289	280	161,855 00	25,583	Iron and steel rails, splice bars, &c.
Blair county.									
Hollidaysburg Iron Works,	18	3	3	20	257	181	65,000 00	3,552.13	Bar, bolt, angle, and other iron, and nails.
								a 21 924	
Blair Iron and Coal Company,	16		1		304	117	46,426 42	6 515	Muck bar.
Altoona Iron Works,	28	4	4		299	136	83,251 86	6,723.07	Merchant iron.
Bucks county.									
Bristol Rolling-Mills,		2	2		250	95	45,000 00	3,612 00	Hoop iron.
Carbon county.									
Carbon Rolling-Mill Company, (Limited,)	9	1	2		88	50	8,652 57	1,182.15	Muck bar.
Centre county.									
Bellefonte Iron Works,		1	1		225	9	4,356 00	1,800	Charcoal wire billets and boiler covers.
Curtins & Co.,	1	1	2		130	10	2,453 00	600	Muck, bar, and charcoal iron.
Howard,	4		3						Not in operation during 1881.
Chester county.									
Lukens Rolling-Mill,	3	4	2		300	130			Boiler, plate, and muck bars.
Parkesburg Iron Works,	8	3	1		215	125	70 628 18	4,651.01	Sheared tube skelp.
Phœnix Iron Works,	42	28	8		300	1,840	601,296 20	37,400.04	Rounds, squares, flats, and shapes.
Thorndale Iron Works,	4	2	2		300			3.210	Plate iron.
Valley Iron Works,	8	4	4		310	150	80,000 00	5,760	Plate iron.
Columbia county.									
Berwick Rolling-Mill,	11	2	4		300	111	70,779 69	7,930	Merchant iron.
Cumberland county.									
Harrisburg Nail Works,	18	3	3	75	265	418	138,369 96	6,645	Muck bars.
								a 161,817	Nails.

ROLLING-MILLS.—Continued.

NAME OF WORKS.	Number of puddling furnaces.	Number of heating furnaces.	Number of trains of rolls.	Number of nail machines.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	PRODUCT. Number of tons of iron.	PRODUCT. *a* Number of kegs (100 lbs.) of nails.	REMARKS.
Dauphin county.										
Lochiel Rolling-Mill,	10	12	4	...	....	400	116,960 93	5,692		Bar.
								6,343		Steel rails.
Harrisburg Iron and Steel Works,	...	2	2	...	60	55	.....	500		
Paxton Rolling-Mills,	10	5	3	...	296	170	109,434 31	9,164		Boiler and tank iron.
Delaware county.										
Chester Rolling-Mill,	22	5	7	..	298	377	151,258 95	9,875		Plate iron.
Combination Steel and Iron Company,	...	8	2	...	221	90	24,599 78	2,569.19		Common and refined bar iron.
Erie county.										
Mount Hickory Rolling-Mill,	15	4	4	...	277	202	115,500 00	1,125		Bar and guide iron.
Lackawanna county.										
Green Ridge Iron Works,	...	1	2	..	207	20	8,400 00	900		Bar iron.
Lancaster county.										
Penn Iron Works,	8	7	4	*5	299	347	116,616 65	*a* 13,250		Kegs of 150 pounds. *Spikes and bolts. Bar iron, fish plates, bolts, nuts, and forged axles.
Phœnix Iron Works,	19	7	2	..	250	150	50,000 00	7,500		
Shawnee Rolling-Mill,	16	4	2	...	300	140	..	5,000		
Susquehanna Rolling-Mill,	12	3	3	...	310	184	96,520 00	8,500		Bar iron.
Chickies Rolling-Mill,	7	...	1	...	203	49	21,048 48	3,055		Muck bar.
Lawrence county.										
Etna Iron Works,	25	5	4	55	286	360	213,189 32	*a* 120,278		
								6,331		Merchant iron and nails.
Reis Brothers & Co.,	16	5	4	...	290	175	175,000 00	8,776		Sheet and plate iron.
Lebanon county.										
Lebanon Rolling-Mill,	8	5	2	...	270	180	69,751 95	4,685		Common, tank, and boiler iron blooms.

Vande Sand & Capp,	3	1	3		250	44	$20,000 00	1,500	Merchant bar.
Lehigh county.									
Catasauqua Manufacturing Company,	30		8		300	600	255 361 64	27,838,17	Bar and plate.
Allentown Rolling-Mills,	9	2	3		240	170	38,689 74	5,032	Muck bar and spike iron.
Allentown Rolling-Mills,	25	12	8		265	702	259,764 35	49,410	Bar iron, splice, and rails.
Lycoming county.									
Jenkins, Schreyer & Co.,	9	2	2			50	33,500 00	2,330	Refined bar iron.
Mercer county.									
Sharon Iron and Nail Works,	29	12	6	46	300	580	325,000 00	*a*80,000 17,000	Merchant iron and rails.
Stewart Muck Mill,	15	1	2		262	42	29,221 54	3,912.03	Hammered blooms for steel purposes.
Mifflin county.									
Logan Iron and Steel works,	9	3	3		285	81	54,700 00	4,432	Merchant bar.
Montgomery county.									
J. Wood & Brothers,	12	7	7			200	105,000 00	6,048	Sheet and plate iron.
Glasgow Iron Works,	12	3	2		295	125	93 816 22	15,497.12	Bar and plate iron.
Norristown Iron Works,	12	3	3		300	132	53 621 08	4 305.06	Skelp iron.
Pencoyd Iron Works,	26	11	4		310	650	271,213 03	21,429.06	Bar iron, shafting, axles, etc.
Pottsgrove Iron Works,	10	3	3		300	145	75,000 00	6,458.16	Plates, muck bar, 6,108 18 tons.
Pottstown Iron Company,	23	10	7	55	300	975		*a*207.634 9,984.19	Nails and plates.
Schuylkill Iron Works,	15	9	6		280	451	254,389 00	*26,304.14 12,000	* Puddled iron. Sheet and tank iron.
Montour county.									
Montour Iron and Steel Company,	42	19	4		309	959	319,198 45	46 423.15	Light and heavy rails.
Glendower Iron Works,	10	8	3		265	228	114 115 16	17,124 10	Railroad iron.
Co-operative Iron and Steel Works,	6	7			286	125	100,000 00	17,219	Railway bars,
Northampton county.									
Easton Sheet Iron Works,	2	1	1		264	43	24,609 81	1,038.04	Sheet iron.
Lehigh Rolling-Mills,		2	2		280	22		1,500	Wire rods.
Northumberland county.									
Van Alen & Co,	9	1	2	28	285	130	64,683 82	*a*64.752 3,223.08	Nails.
Perry county.									
Duncannon Iron Works,	16	6	4	54	305	333	150,946 00	*a*106.033 5,273	Bar iron and nails.
Philadelphia county.									
Gray's Ferry Iron Works,	3	3	2		297	115		3 257	Plate iron.
Penn Treaty Rolling-Mill,	8	6	5		250	150	75,000 00	3,200	Sheet and plate iron.
S. Robbins & Son,	8	6	4		299	281	134.218 77	9,183	Merchant bar.
Keystone Horse Shoe Company,	4	1	3						Not yet in operation.
Kensington Iron, Steel, and Nut Works,	22	8	7	33	300	360	175,000 00	*a*51.770 875 8,800	Steel, Merchant iron, steel plow plates, nails, etc, Iron, etc,

ROLLING-MILLS—Continued.

NAME OF WORKS.	Number of puddling furnaces.	Number of heating furnaces.	Number of trains of rolls.	Number of nail machines.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	PRODUCT. Number of tons of iron.	PRODUCT. *a* Number of kegs of nails, (of 100 lbs.)	REMARKS
Philadelphia county—Continued.										
Fairhill Furnace and Rolling-Mill,	4	4	2		300	104	$80,700 00	6,940		Merchant bar.
Corydon Winch Rolling-Mill,		5	4		300	105	60,083 40	4,112		Bars, spikes, and rail-joint plates.
Philadelphia Iron and Steel Company,	5	7	5		300	188	66 647 21	10,000		Bar and special shapes.
Delaware Rolling-Mill,	8	4	4		300	143	90,280 00	9,900		Bar iron.
Schuylkill county.										
Greenwood Rolling-Mill,	5	2	2		112	84	13,963 65	1,013 .15		Merchant bar.
Pottsville Rolling-Mill,	23	12	3		300	750	215,187 09	26,259		Rails, beams, etc.
								11,775		Puddled bar.
Port Carbon Mills,	16	1	2		300	124	36,997 74	60		Bar iron.
								5,256.11		Puddled bar.
Schuylkill Haven Iron Company,		2	2		275	34	14,000 00	3,000		Bar iron.
Westmoreland county.										
Scottdale Rolling-Mill,	12	1	3		270	169	100,200 00	6,790		Muck bar.
								2,350		Sheet iron.

RECAPITULATION.

Number of ROLLING-MILLS to whom blanks were sent,			135
Number returned,	106		
Number not responding,	29		
Number of PUDDLING FURNACES returned,	1,576		
Number of PUDDLING FURNACES in other mills,	528		
Total,			2,104
Number of HEATING FURNACES returned,	574		
Number of HEATING FURNACES in other mills,	178		
Total,			752
Number of TRAINS OF ROLLS returned,	380		
Number of TRAINS OF ROLLS in other mills,	109		
Total,			489
Number of NAIL MACHINES returned,	943		
Number of NAIL MACHINES in other mills,	188		
Total,			1,131
Average number of days worked during the year,			274
Number of persons employed at mills, reporting,	30,300		
Estimated number of persons employed at mills, not reported.	10,000		
Total,			40,300
Total production of mills returned, net tons,	1,084,621		
Estimated capacity of mills not reported, net tons,	362,140		
Total, net tons,			1,446,761
Production of nails, of mills returned, kegs, (100 lbs.,)	1,425,740		
Estimated capacity of machines not reported, kegs, (100 lbs.,)	408,968		
Total, kegs,			1,834,708
Amount of wages paid in production of tons,	975,482	$13 315 097 41	
Estimated wages paid in production of (reported) tons,	109,139	1,489,747 35	
Estimated wages paid on tonnage of mills, not reported,	362,140	4,581,211 00	
Totals, tons,	1,446,761	$19,386,055 76	
Average amount per ton paid in wages,			$13 65

AN EXHIBIT OF THE CAPACITY OF ROLLING-MILLS NOT RETURNED.

NAME OF WORKS.	COUNTY.	Number of puddling furnaces.	Number of heating furnaces.	Number of trains of rolls.	Number of nail machines.	Capacity in tons.	REMARKS.
Elba Iron and Bolt Company, (limited,)	Allegheny,	24	7	8	. . .	20,000	
Kensington Iron Works,	do.	16	6	4	. .	6 000	
Fort Pitt Iron and Steel Works,	do.	20	15	8	. .	12,000	Two 24-pot Siemens steel melting furnace, 7 hammers.
National Tube Works Company, No. 1,	do.	16	7	3	. .	40,000	
No. 2,	do.	20	5	3	. .		
Pittsburgh Iron Works,	do.	52	17	13	. .	20,640	
Sable Iron and Nail Works,	do.	34	11	6	. . .	18,000	
Superior Rolling-Mill,	do.	30	16	4	. . .	15,000	
Hamburg Iron Works,	Berks,	9	4	2	. .	4,000	One hammer.
Towanda Nail Works,	Bradford,	6	3	2	24	1,500	
Milesburg Iron Works,	Centre,	3	2	3	. . .	3,000	Two hammers.
Coatesville Iron Company,	Chester,	9	6	4	. . .	11,000	One hammer.
Laurel Iron Works,	do.	. .	3	2	.	6 000	
Chesapeake Nail Works,	Dauphin,	16	3	2	67	7,500	
Central Iron Works,	do.	11	. .	1		7,000	Puddle-mill.
Old Fort Iron Works,	Fayette,	6	3	2	. .	9,000	Two spike and bolt machines.
Lackawanna Iron and Steel Works,	Lackawanna,	113	35	12		65,000	
Lancaster Rolling-Mill,	Lancaster,	7	2	2	. .	3,000	One hammer.
Standard Nail and Iron Company,	Lycoming,	2	1	1	7	1,000	
Atlantic Iron and Nail Works,	Mercer,	32	6	6	40	20,000	
Greenville Rolling-Mill,	do.	12	2	4	. .	12,000	
Middlesex Rolling-Mill,	do.	10	1	2	. .	5,000	
Wheatland Rolling-Mills,	do.	24	14	3	. . .	45,000	
Stony Creek Rolling-Mill,	Montgomery,	3	2	2	. .	1,500	
Fulton Rolling-Mill,	do.	22	. .	1		12.000	Puddle-mill not in operation.
Milton Nail Works,	Northumberland,	10	2	1	50	5,000	
Milton Rolling-Mill,	do.	6	1	3	.	2,000	
Little Schuylkill Rolling-Mill,	Schuylkill,	5	2	3	. .	2 500	Not in operation in 1881.
Codorus Steel Works,	York,	10	2	2		7,500	Not in operation since 1874.
Total,		528	178	109	188	362 140	

BLOOMERIES.

NAME OF OPERATOR.	Number of refineries.	Number of fires.	Number of hammers.	Days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of blooms produced.	REMARKS.
Berks county.								
W. & B. F. Taylor,	1	5	2	240	14	$5,540 00	72.00	
Morgan J. Althouse,		2	1	260	15		240.00	
B. F. Morret,	1	8	1	280	26	12,486 00	1,403.00	
Simon Seyfert & Co.,	1	4	2					
Blair county.								
John Royer	1	3	1	200	30	8,902 00	388.00	
G. W. Smith,								Not in operation.
Samuel Isett,								Not in operation since 1877.
Centre county.								
Valentines & Co.,	1	12	1	280	42	22,879 00	2,500.00	
Curtins & Co.,		8	1	180	20	7,365 00	920.00	
Bernard Lauth,	1	10	1	304	28	6,107 16	1,800.00	
Chester county.								
Esther Kanfman,		3	1	178	12	3,504 09	594 00	
John Cornog,	1	4	1	245	21		700.00	Changed from water to steam power in 1881.
Clinton county.								
Washington Iron Works,		8						Not in operation since 1876.
Cumberland county.								
C. W. Ahl & Son,	1	5	1	312	40	12,000 00		
Mumma & Boyer,	1	3	1	220	16	3,950 00	400.00	
Dauphin county.								
Killinger, Kaufman & Co.,	1	5	1	275	30	12,000 00	1,200.00	
Franklin county.								
Mont Alto Iron Company,	1	7	1	160	22	6,563 56	938.06	
Huntingdon county.								
J. W. Mumper & Co.,	1	6	1	120	14	4,200 00	500 00	
Lancaster county.								
Edward S. Davis,	1	3	1		11		192.00	
Davis & Potts,	1	4	2	145	10	2,515 00	375.00	
Lebanon county.								
Samuel R. Wanner,	1	5	1	230	21	8,000 00	900.00	
J. & R. Melly,		5	1	250	49	25,000 00	2,651.00	
Lycoming county.								
Jenkins, Sehreyer & Co.,	1	8	1				600.00	See R. M. for labor, etc.
Montgomery county.								
Pottstown Iron Company,		3	1	200	19		798.18	
Perry county.								
Seidel Brothers,	1	7	1	320	100	20,000 00	2,570.00	
William McIlvain & Sons,	1	3		200	17	6,000 00	649.00	

RECAPITULATION.

Number of bloomeries to whom blanks were sent,	37	Number of fires returned,	131
Number not reported,	5	Number of hammers returned,	25
Number returned,	32	Average number of days in operation during the year,	230
Number not in operation,	11	Number of persons employed,	557
Number tabulated,	21	Amount paid in wages during the year,	$167,011 81
Number of run-out returned,	18	Amount of production, tons,	20,991.04

BESSEMER STEEL.

NAME OF WORKS.	Number of converters.	Capacity of converters-tons.	Number of cupalos.	Number of spiegel cupalos or furnaces.	Number of open hearth furnaces.	Number of blooming mills.	Number of trains of rail and other rolls.	Number of hammers.	Number of days in operation during the year.	Number of persons employed.	Total amount paid in wages during the year.	REMARKS.
Edgar Thomson Steel Works,	2	7½	4	4		1	1	1	302	1,500	$1,178.188 55	
Cambria Iron and Steel Works,	2	6½	4	2	2	1	13	. . .	302	2,900	1 702,640 00	Steel, rolling-mill, and mechanical department included in products, wages, etc.
Pennsylvania Steel Works,	3	5	4	2	2	1	1	1	312	1 600	950 000 00	
Lackawanna Iron and Steel Works,	3	5	4	4			12	1	. . .	3 000		
Bethlehem Iron Company,	4	7	8	4	. . .	2	3	3	312	*2,900	*1 552,383 74	* Includes blast furnaces and mines.
Total,	14	.	24	16	4	5	30	6	307	11,900	$5 383 712 29	

PRODUCTION OF BESSEMER STEEL.

Name of Works.	Steel ingots—gross tons.	Steel blooms—gross tons.	Steel rails—gross tons.	Steel billets—gross tons.	Steel merchant blooms—gross tons.	Total finished product—gross tons.	Remarks.
Edgar Thomson Steel Works,	157,543.08	156,648.09	136,605.06	542.01	733.07	137,880.14	
Cambria Iron and Steel Works,	.....	.....	120,500.00 *39,200.00	.....	†25,000.00	184.700.00	
Pennsylvania Steel Works,	.....	.....	97,131.00	9,500.00	163.00	106,794.00	
Lackawanna Iron and Steel Works,	170,000.00	.....	150,000.00	.....	13,500.00	163.500.00	Estimated capacity for iron and steel.
Bethlehem Iron Company,	.. ...	...	140,102.07	.	11,533.16	151,630.03	921 tons of iron.
Total,	.....	.....	683,538 13	10,042 01	50,930.03	744,510.17	

* Iron rails.

† Merchant steel and iron.

CRUCIBLE STEEL WORKS.

NAME OF ESTABLISHMENT.	Number of heating furnaces	Number of Siemens' furnaces.	Number of pots.	Number of steel melting furnaces.	Number of pots.	Number of hammers.	Number of rolls.	Days in operation.	Number of persons employed.	Amount paid in wages during the year.	Amount of product.	REMARKS.
Allegheny county.												
Liggett Spring and Axle Works,	3					6	1	287	120	$62,400 00	$178 000 00	Springs and axles.
Hussey, Binns & Co.,	10	1	24	1	24	4	2	301	82	55,400 00	23 160 doz.	Shovels, spades, and scoops.
La Belle Steel Works,	16	2	78	3	48	9	4	300	350	208 161 40	11,934 000 lbs.	Two puddling furnaces.
Pittsburgh Steel Casting Company,		2	72	3		2			110	71,000 00	2,200,000 lbs.	
Armstrong county.												
West Penn Steel Works,		1		1		1			50			Commenced operation December, 1881.
Cambria county.												
Gautier Steel Works,								311	1,147	500,000 00	72,000,000 lbs.	
Delaware county.												
Eureka Cast Steel Company,								310	66	30,701 58	1,147,825 lbs.	Steel castings.
Philadelphia.												
Fairmount Steel Works,	3			4	24	3		302	20	13,970 44	293,000 lbs.	
Henry Disston & Sons,	10			66	132	1	3	296	120	79,500 00	6,182 000 lbs.	
Midvale Steel Company,	14	5	30	14	52	7	2	300	468	229,919 41	16,726,009 lbs.	One open hearth and one converting furnace.
Oxford Iron and Steel Works,	4			24	48	2	3	300	162	102 325 63	$413,164 82	Four steel converting furnaces.
Philadelphia Steel Forge,	4			20	40	5		264	15	9,000 00	800,000 lbs.	
Totals,	64	11	204	135	368	40	15	297	2,710	$1,362,378 46	111,282 834 lbs. 23,160 doz. $591,164 82	

IRON FOUNDRIES.

A TABLE *showing production, &c., of iron foundries of the State of Pennsylvania as reported for the year ending December 31, 1881.*

NAME OF ESTABLISHMENT.	Number of days in operation.	Number of persons employed.	Number and capacity of cupolas in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Total amount paid in wages during the year.	REMARKS.
Allegheny county.							
Phœnix Roll Works,	308	83	1–15	2 836		$43.220 00	Rolls, pinions and dies.
Fort Pitt Foundry,	365	180	3–15	6,246		132 753 68	Castings and machinery.
Iron City Foundry,	310	107	2–30	1,966		54,781 73	Castings.
West Point Foundry,	307	19	1– 2½	394		9,549 65	Castings for gas and steam fitting.
Pittsburgh Foundry,	300	6				2.500 00	Foundry facings.
William D. Hartupee,	300	67	1– 4	550		27,000 00	Engine builders and founders.
Atlas Works,	300	92	2–16	3,000		67,730 63	Engines and machinery.
Washington Works,	306	232	1–10 1–20	3,500		137,979 74	Marine, blast, and stationary engines and rolling-mill work.
Hecla Foundry,	307	43	3–15	2,135		27,785 00	General castings.
Monongahela Foundry and Machine Shop,	307	110	1– 7	1,100		62,500 00	General machinery.
Livingston Novelty Works,	295	100	1– 7	850	56,000	50,000 00	Domestic, hardware and light castings.
Architectural Iron Foundry,	295	16	1–15	600		10,400 00	General foundry work.
H. P. Rankin,	313	21				5.715 26	Meat choppers, presses, butchers tools, &c.
D. C. Butler,	308	36				23,400 00	Wood working machinery; general jobbing.
William Renton,	300	20					General machinery.
Berlin Foundry,		60	1–10	1,800		35,000 00	Iron castings.
Birmingham Foundry and Machine Shop,	306	30	1– 6	934		17,877 53	Castings, machinery for glass manufacturers, and pulleys.
Armstrong county.							
Kittanning Foundry,	260	7	1– 2	125		2,500 00	Plow castings, car wheels, &c.
Apollo Iron and Brass Foundry,	290	3		90	3,800	888 00	
Beaver county.							
M. Darragh & Co.,	200	11	1– 2	100		3,500 00	Miscellaneous.
Bedford county.							
Shires & Jordan,	200	4	1– 1½	23		1,225 00	Threshing machines, plows, &c.
Everett Foundry,	200	3	1– 1	27		1,000 00	Threshing machines, plows, &c.

IRON FOUNDRIES.—Continued.

NAME OF ESTABLISHMENT.	Number of days in operation.	Number of persons employed.	Number and capacity of cupolas in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Total amount paid in wages during the year.	REMARKS.
Bedford county.—Continued.							
Pleasantville Foundry,	250	4	1— 1½	27			Mill machinery and plows.
Keystone Foundry and Machine Works,	275	10	1— 2½	60	2,240	2,900 00	Mill machinery, wheels, and railroad frogs.
Waterside Foundry and Machine Works,		5					Plow castings and general repairs.
Berks county.							
Reading Butt Works,	300	134	1— 6 1—15	1,100	500	30,000 00	Builders' hardware.
Penn Hardware Company,	288	155	1— 7 1— 5	1,000		35,000 00	Hardware.
Kutztown Foundry and Machine Shop,	305	22	1— 4	240	700	11,800 00	Mill, mining, and slate machinery.
Central Foundry and Machine Shop,	310	31	1— 3	400		15,600 00	Engines, shafting, pulleys, and repairing.
Boyertown Machine Shop,	306	4				1,050 00	Feed cutters, &c.
Derr Plow and Stove Works,	248	8	1— 2	90	259,249		150 plows.
Scott Foundry,	310	290	1—15 1—25	2,996		117,132 05	General machinery.
Blair county.							
Gaysport Foundry,	300	56	1— 7½ 1—15	900	6,720	22.000 00	Engines, general machinery, and castings.
Altoona Car Works, (limited,)		76	1— 5 1—10	900	1,000		Freight cars, foundry and machine work.
Hoover's Repair Shop,	200	3				300 00	Threshing machines and fanning mills.
Bradford county.							
Cayuta Wheel Foundry,	280	71	1—13 1—26 1— 6	7,000		28,000 00	Chilled car wheels and railroad castings.
Bucks county.							
New Hope Agricultural Works,	300	13	1— ½	25		7,500 00	Horse powers and threshers, fodder cutters.
Newtown Agricultural Works,	300	21	1	75		8,000 00	Agricultural implements, mowers.
Bristol Iron Foundry,	295	13	1— 5	350		5,485 00	Fine grey iron castings.

Butler county.							
Harmony Foundry,	230	4	1— 1	80	. . .	1,000 00	Plows, points, and other castings.
Bingham & Sons,	210	5	1	100	. . .	1,500 00	Plows, points, and other castiugs.
Ireland and Hughes,	. . . .	9	. .	. . . . .	. . .	. . . . .	Oil well drilling tools and repairs.
Cameron county.							
Emporium Foundry and Machine Shops,	300	12	1— 1	20	200	2,000 00	General repairs.
Centre county.							
John D. Foote & Co.,	260	8	. . . . .	50	. . .	$4,000 00	Agricultural implements.
George Swartz,	156	4	. .	22	. .	. . .	Agricultural implements.
Mattern's Foundry,	75	3	1	12	.	700 00	Agricultural implements.
Centre Hall Machine Shop,	313	7	1—1½	46	. .	. . . . .	Agricultural implements.
William P. Duncan,	298	34	1—5	. . .	. . .	15,000 00	
Chester county.							
Moorehall Foundry and Machine Shop,	290	29	1—8	100	. . .	7,500 00	Engine lathes, machinery, etc.
Oxford foundry,	234	3	1	25	. . . .	250 00	Plow and general small castings.
Clarion county.							
Strattonville Foundry and Machine Shop,	156	10	1—1	30	. . . .	500 00	Plows, points, and machinery castings.
Clarion Foundry,	. .	3	1	28	. . .	. . . . .	Mill castings, stoves, and repairs.
Rimersburg Foundry,	234	5	1—2	54	. . .	810 00	Plow castings, car-wheels, and stoves.
Clinton county.							
Novelty Iron Works,	. . . .	31	. . . . .	. . . .	. . . .	. . . . .	Steam engines, saw-mills, etc.
Columbia county.							
Bloom Iron Works,	300	19	1—4	360	300	7,000 00	Stoves and agricultural implements.
Eagle Iron Works,	156	4	1—3	50	. . . . .	. . . . .	Stoves, plows, and mine works.
Catawissa Repair Shops,	. . .	60	. . . . .	. . .	. . . .	. . . . .	
Crawford county.							
Union Iron Works,		4	1—2	150	. . . .	1,500 00	Agricultural and housework.
Conneautville Iron Works,	250	14	1—3	75	. . . .	2,500 00	Agricultural implements.
Gibbs & Sterrett Manufacturing Company,	308	90	1—6	45	. . . .	52,059 00	Boilers, drilling tools, and repairs.
Dauphin county.							
Susquehanna Iron Works,	265	125	20	2,800	2,240	52,000 00	Stoves and machinery.
Franklin Iron Works,	275	23	4	300	. . . .	7,480 00	General castings.
Delaware county.							
Robert Wetherill & Co.,	310	200	2	1,200	29,120	93,600 00	Corliss engines and boilers.
Phœnix Iron Works,	308	30	1—5	64	. . . . .	11,285 23	Finishing, and mill machinery.
Delaware River Iron Ship-building and Engine Works,	309	1,170	. . .	1 121	. . . . .	576,618 90	Iron ships, engines, boilers, etc.
Elk county.							
St. Mary's Foundry,	200	6	1—15	30	. . .	1,500 00	Castings.
Ridgway Iron Works,	309	12	1	63	450	3,996 00	Saw-mill and tannery works.
Erie county.							
Scidon & Griswold Manufacturing Company,	290	45	1—4	425	. . .	23,000 00	Small grey iron castings.

IRON FOUNDRIES—Continued.

NAME OF ESTABLISHMENT.	Number of days in operation.	Number of persons employed.	Number and capacity of cupolas, in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Total amount paid in wages during the year.	REMARKS.
Erie county—Continued.							
Davenport, Fairbain & Co.,	309	131	5	14,305		$77,940 48	Car-wheels, and railroad castings.
Erie City Iron Works,	300	217				102,381 47	Engines, boilers, and saw-mills.
Presque Isle Iron Works,	305	300	1–5 1–10	1,600	26,800	184,119 59	Machinery.
Humboldt Iron Works,	307	9				6,200 00	General repairing.
Union City Iron Works,	306	17	1–20	7	4,480	5,650 42	Steam Engines, and general machinery.
Bay State Iron Works,	300	143	1–10	1,000		88,000 00	Engines, boilers, and hoisting machines.
Fayette county.							
Fayette Foundry and Engine Shops,	300	48	1–1½	250	22,000	14,000 00	Engines, boilers, and machinery.
Fulton county.							
Fort Littleton Foundry,	208	2	1–10	20		500 00	Plows and plow castings.
Indiana county.							
McFarland's Foundry and Machine Shop,	275	8	1–3	100	150		Stoves, plows, and machinery.
Diamondville Foundry,	286	5	1			550 00	Plows, points, and machinery.
Armagh Foundry,	250	8	1–1½	80		1,500 00	General foundry works.
C. C. W. & P. Manufacturing Company,	250	7	1–2½	133	150	2,400 00	General castings.
Lackawanna county.							
Delaware, Lackawanna and Western Railroad Co.,	308	300				140,295 94	Locomotives.
Miller's Foundry,	150	3	1–1	25		900 00	Agricultural implements.
Lancaster county.							
Mount Joy Foundry and Machine Shop,	300	12	1–3	50	500	5,000 00	Portable and stationery engines, and farm machinery.
Brunnerville Agricultural Works,	308	11	1–1½	84		4,163 00	Agricultural implements.
Conowingo Foundry,	130	3	1–1½	20			Agricultural implements.
Christiana Machine Company,	308	36	1–5	265	1,800	13,174 00	Turbine wheels, milling machinery, etc.
Lawrence county.							
Lawrence Foundry and Machine Shop,	290	26	1–4 1–6	400	2,500	10,000 00	Steam Engines, rolling-mill, and blast furnace machinery.
New Castle Foundry and Machine Shop,	308	33	1 3½	550		11,400 00	General machinery and repairs.

Lebanon county.							
Lebanon Manufacturing Company,	306	403	2—30	2,500	22,400	130,000 00	All kinds of cars, engines, castings, plows, belts, etc.
Lehigh county.							
Barber, Keiser & Co.,	313	56	2—7	527		25,131 57	Engines, turbine wheels, and bark mills.
H. H. Fisher,	300	85	3—55	6,000		33,000 00	Cast-iron pipe, car castings, and general foundry work.
Eagle Plow and Fence Works,	300	9	1—2	143		3,000 00	Plows, railings, rollers, and repairs.
Davies & Thomas,	306	150	2—20	6,000		50,000 00	Car castings and general machinery.
Allentown Iron Works,		9	1			4,000 00	Repairing.
Allentown Rolling-Mill Company,	308	116	15	625		39 760 95	General machine work.
Lehigh Car-Wheel and Axle Works,	300	218	3—58	17 325		78,000 00	Car wheels and castings.
Luzerne county.							
Wyoming Plow Works,	200	2	1	30		400 00	Agricultural implements.
The Howell's Manufacturing Company,	102	13				2 274 91	Patent mine drills and mining tools.
Vulcan Iron Works,	310	110	3—20	985	13,440	49,969 74	Machinery, castings, and forgings.
Jeanesville Iron Works,	300	78	1—3 1—7	900	4,960	35 233 04	Steam engines and mine machinery.
G. W. Mooers,	300	7	1	175	1,200		Mine cars, house fronts, and stove castings.
Wisner & Strong's Foundry and Machine Shop,	290	34	1—6	260	2,000	15 683 20	Engines, boilers, pumps, and mine machinery.
Lycoming county.							
Novelty Iron Works,	300	16	1—15	50	500	6 000 00	Steam engines, saw-mills, &c.
Rowley & Hermanee,	307	110	1—3	445	11,200	52 000 00	Wood-working machinery.
Valley Iron Works,		25	1—5	425	8,960	9,000 00	Rolling, nail, saw-mill, and tannery machinery.
Mercer county.							
William McGilvray & Co., (Limited,)	305	23	1—5 1—8	840	2,240	14,000 00	Castings, all kinds.
Mifflin county.							
McVeytown Foundry and Machine Shop,	310	7	1-10	24		1,418 00	General machinery and repairs.
Montgomery county.							
Eagle Works,	309	61	1—10	550	4,100	30 000 00	Machinery and castings.
Montgomery Boiler and Machine Works,	305	33	1-5	172	550	15,388 59	Boilers and castings of every description.
Montour county.							
Enterprise Foundry and Machine Works,	308	44	1	620	4,889	14 071 89	Engines and mill machinery.
Northampton county.							
Bartrom & Black Manufacturing Company,		7		100	550		Steam engines, mill, and factory gearing.
Saucon Foundry,	300	10	1	60	300	3,462 00	Mill and mining machinery, and agricultural implements.
Slimersville Hardware Works,	300	50	2—5	365		12,250 00	General hardware.
Nazareth Agricultural Works,		17	1— ½	50			Agricultural implements.
Eagle Foundry and Machine Shop,	310	23	1—5	217		11,657 00	Machinery for flour and saw-mills, &c.
Northumberland county.							
George Rohrbaek & Sons,	250	8	1-3	75		1,800 00	Plows, cultivators, and castings.
Sunbury Foundry and Repair Shop,	313	11	1—1				Farming implements.

IRON FOUNDRIES.—Continued.

NAME OF ESTABLISHMENT.	Number of days in operation.	Number of persons employed.	Number and capacity of cupolas, in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Total amount paid in wages during the year.	REMARRKS.
Perry county.							
Rheem & Brother,	220	9	1	60	.....	1,050 00	Agricultural implements and castings.
Clinton Foundry,	162	5	1	23	.....	400 00	Agricultural implements and castings.
Philadelphia county.							
Chambers Brothers & Co.,	308	106	1—2 1—6	500	.....	50,000 00	Folding machines, brick machines, bolt clippers, engines, paper cutters, and castings.
Stanley G. Flagg,	308	300	3—15	2 000	...	125,000 00	Malleable iron and steel castings.
James Way,	280	17	1—5	3,360	.	3,600 00	Principally railroad work.
William Sellers & Co.,	300	674	3	3,000	182,000	...	Machine tools.
William B. Bement & Son,	310	400	2—50	2,000	..	230,000 00	Machine tools, steam-hammers, &c.
Shackamaxon Steam Engine and Boiler Works,	310	41	.....	...	....	14,619 22	Engines, pumps, boilers, tanks, &c.
Howard Foundry and Machine Shop,	300	57	.....	.....	....	10,000 00	General machinery.
Schuylkill county.							
Ashland Iron Works,	309	50	1—10	488	5,688	19,758 00	Steam engines, boilers, and mining machinery.
Franklin Iron Works,	300	95	1—8	375		43,000 00	General machinery.
Tremont Iron Works,	288	15	1—20	150	2,240	3,700 00	Engines and colliery work.
Grant Iron Works,	254	9	1—5	112	1.500	3,800 00	Steam engines and mining machinery.
Eagle Iron Works,	330	14	3—6	120	3,000	4,400 00	Steam engines and iron castings.
Minersville Iron Works,	308	25	1—5 1—10	1,033	455	10,850 48	Steam engines and general machinery.
Pottsville Repair Shop,	305	381	3—10	2,071	3,315	.....	Mining machinery and repairs.
Somerset county.							
Somerset Mechanical Works, (Limited,)	300	9	1—10	135	200	4,500 00	Plows, stoves, and general foundry.
Salisbury Foundry,	..	3	.	20	...	..	Plows, stoves, and grates.
Berlin Foundry,	200	5	1—1½	18	....	425 00	Plows, stoves, cars, &c.
Tioga county.							
Blossburg Foundry,	290	7	1—3	237	8,960	3,500 00	Railroad and mine machinery, and repairs.
Knoxville Foundry,	156	2	1—1	25	..	650 00	Agricultural implements and wood mills.
Union county.							
Enterprise Foundry,	290	4	1—1	31	.....	.....	Agricultural implements.

Central Manufacturing Company,	300	55	1–5	300	. . . . .	15,800 00	Reapers and mowers.
Warren county.							
Struthers Iron Works,	300	100	1–5	900	15,000	55,000 00	Oil well, saw-mill, and tannery machinery, engines, boilers, and repairs.
Wyoming county.							
Tunkhannock Agricultural Works,	300	5	1	15	. . . .	1,500 00	Agricultural implements.
York county.							
Variety Iron Works,	300	131	2–12	4,000	. . . . .	60,000 00	Architectural, ornamental, and machinery.
York Manufacturing Company,	344	20	. .	. . . .	. . . . .	8,370 00	Steam engines and mill machinery.
George F. Baugher,	306	201	4–40	7,248	. . . .	65,000 00	Turbine water-wheels, mill gearing, and car castings.

STOVE FOUNDRIES.

A TABLE *showing the production, &c., of stove foundries of the State of Pennsylvania as reported for the year ending December 31, 1881.*

NAME OF ESTABLISHMENT.	Number of days in operation.	Number of persons employed.	Number and capacity of cupolas in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Total amount of wages paid during the year.	REMARKS.
Allegheny county.							
Lafayette Stove Works,	289	53	1— 7	650	. . . . .	$25,000 00	Stoves, ranges, grate-fronts, and fenders.
Keystone Stove Works,	260	50	8	900	. . . . .	29,000 00	Stoves.
Bissell & Co. Stove Works,	. . . .	60	1—10	1,000	. . . . .	. . . . .	Stoves, grates, furnaces, &c.
Beaver county.							
A. F. Wolfe Stove Works,	290	60	1— 8	900	. . . . .	32,000 00	Stoves.
Keystone Foundry,	126	7	1—15	125	. . . .	1,770 00	Stoves, grates, grate-fronts, and fenders.
Berks county.							
Reading Stove Works,	267	237	2—36	2 524	. . . .	110,000 00	Stoves, heaters, ranges, and hollow-ware.
Mt. Penn Stove Works,	120	62	1—16	480	. . . .	15,698 48	Stoves, heaters, ranges, and hollow-ware.
Chester county.							
Spring City Stove Works,	300	195	1—10 1— 5 1— 2½	100	. . . . .	78 173 68	Stoves and hollow-ware; 1,500 stoves.
Erie county.							
Chicago and Erie Stove Company,	. . .	135	1—11 1—40	1,200	. . . .	04,500 00	Stoves.
Black & Germen,	312	91	1— 8	900	. .	47,500 00	Stoves.
Lehigh county.							
Lehigh Stove and Manufacturing Company,	280	38	1— 6	830	. . . . .	19,031 47	
Montgomery county.							
Continental Stove Works,	280	130	1—12	1,250	. . . . .	78,000 00	Stoves and hollow-ware.

Philadelphia county.							
Leibrandt & McDowell Stove Company,	300	207	1—25	2,625		111,000 00	Stoves heaters, and ranges.
Spring Garden Stove and Hollow-ware Foundry,	285	169	1—20	1,500		78,000 00	Stoves and hollow-ware.
Philadelphia Grate Works,	300	45				14,000 00	Grates, furnaces, ranges, &c.
Excelsior Stove Works,	295	189	1—12 1—15	4,500		123 000 00	Stoves, heaters, ranges, &c.
Schuylkill county.							
Tamaqua Stove and Hollow-ware Works,	300	10	1— 6	120		4,425 00	Stoves, hollow-ware, railing, &c.

RECAPITULATION.

Number of establishments to whom blanks were sent,		436
Number of establishments not reporting,	227	
Number of establishments not in operation,	46	
Number of establishments tabulated,	163	
		436
Number of cupolas,		191
Number of tons of iron castings,		158,671
Number of pounds of brass castings,		720,626
Average number of days in operation,		273
Number of employees,		11,667
Total amount paid in wages during the year,		$4,735,084 39

WINDOW GLASS.

A TABLE *showing the characteristics and production of the window glass works of the State of Pennsylvania, as reported for the year ended December 31, 1881.*

NAME OF OPERATORS.	Number of furnaces.	Number of pots.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Number of boxes (50 feet each) manufactured.	REMARKS.
Allegheny county.							
Duncan, Campbell & Co	1	10	300	50	$42,000 00	35,000	
Cunningham & Co.,	1	10	234	60	. .	31,315	
Stewart, Estep & Co.,	2	18	209	99	78,500 00	50,793	
S. McKee & Co.,	2	20	220	125	75,000 00		
Abel Kim & Co.,	2	18	260	81	72,000 00	56,000	
Thomas Wightman,	2	20	294	105	57,000 00	. .	$135,000 00.
A. & D. H. Chambers,	3	30	260	250	125,000 00		300,000 00.
Ihmsen Window Glass Co., (limited,)	1	10	260	55	39,200 00	33,000	
Fayette county.							
Robert C. Schmertz & Co.,	3	26	270	207	151,329 20	56,800	
Schmertz & Quinby,	1	10	300	60	46,919 60		70,290 00.
George Wamhoff & Co.,	1	8	234	47	. . . . .	25,000	
Lawrence county.							
Croton Glass Works, (limited,)	1	8	217	60	34,171 00	22,866	
Forbes, Holton & Co.,	1	10	303	48	21,346 35	33,880	
Montgomery county.							
J. M. Albertson & Sons,	1	8	270	59	35,000 00	. . . .	30,000 half boxes.
Tioga county.							
Hirsh, Ely & Co.,	1	8	260	45	12,519 00	25,000	
Hirsh, Ely & Co.,	1	8	260	40	12,519 00	25,000	

RECAPITULATION.

Number of establishments to whom blanks were sent,	32	Number of pots,	222
Number of establishments not reporting,	8	Average number of days in operation,	262
Number of establishments not in operation,	8	Number of persons employed,	1,391
Number of establishments tabulated,	16	Total amount paid in wages during the year,	$802,504 15
	32	Number of boxes (fifty feet each) produced,	409 659
Number of furnaces,	24	Product, (not otherwise classified,)	$505,290 00

FLINT GLASS.

A TABLE *showing the characteristics and Production of the Flint Glass Works of the State of Pennsylvania, as reported, for the year ended December 31, 1881.*

NAME OF OPERATORS.	Number of furnaces.	Number of pots.	Number of weeks in operation.	Number of persons employed.	Total amount paid in wages during the year.	Amount of product.	DESCRIPTION OF WARE.
Allegheny county.							
Bryce, Walker & Co.,	2	22	51	181	$97.000 00	$189,000 00	Table, lamp, and perfumery.
Doyle & Co.,	1	14	39	115	39,098 00	70,191 00	Tableware.
Bryce, Higbee & Co.,	1	11		103			Tableware.
O'Hara Glass Works,	2	20	49	140	70,200 00	124 000 00	Pressed.
Independent Glass Works,	1	10	42	125	42,103 95	76,853 16	Lamp chimney, lantern globes, and flint jars.
McKee Brothers,	3	37	50	242	130,000 00	250,000 00	Table, bar, lamps, and jars.
Adams & Co.,	2	23	51	230	106 000 00	260.000 00	Tableware, jelly tumblers, lamps, &c.
George A. Macbeth & Co.,	1	10	40	153	57,000 00	140,000 00	Lead glass chimney and globes.
Bakewell, Pears & Co,	2	20	20	150	38,619 99		Tableware, bar goods, and shop furniture.
Excelsior Flint Glass Company,	1	10	48	133	61,000 00	95.000 00	Lamp chimneys.
George Duncan & Sons,	1	13	46	130	80 000 00	*120.000	Tableware. *Pieces.
Atterbury & Co.,	1	11	48	100	45,000 00	150.000 00	Lamps and colored glassware.
Crystal Glass Company,	2	20	39	88	28.813 00	65 000 00	Tableware.
Tibby Brothers,	3	30	42	174	82,578 00	170,800 00	Flint prescription vials and bottles.
Agnew & Co.,	1	12	43	78	28.000 00	75,000 00	Prescription vials and bottles.
Campbell, Jones & Co.,	2	20	52	150	86,000 00	120 000 00	Tableware.
Challinor, Hogan & Co.,	1	12	44	152	71,575 63	124,784 78	Lime glass chimneys, specie jars, and reflectors.
Richards & Hartley Flint Glass Company,	1	10	48	112	54,000 00	130,000 00	Pressed tableware, lamps, &c.
J. L. & A. Hamilton,	2	23	44	198	95 283 59	132.101 41	Flint prescription and vials.
C. L. Flaccus,	1	7	42	55	28.000 00	50 000 00	Flint prescription.
Ripley & Co.,	1	10	50	114	50 260 00	100,000 00	Tableware and lamps.
King, Son & Co.,	2	21	45	122	40,000 00	170,000 00	Table glassware.
Armstrong county.							
Parker Glass Company,							Started July 1, 1881. Druggists' ware.

FLINT GLASS.—Continued.

NAME OF OPERATORS.	Number of furnaces.	Number of pots.	Number of weeks in operation.	Number of persons employed.	Total amount paid in wages during the year.	Amount of product.	DESCRIPTION OF WARE.
Beaver county.							
Royal Flint Glass Works,	1	6		50		$50,000 00	Vials and bottles.
Phœnix Glass Works,	1	11	32	170	$46,112 91	75 906 40	Chimneys, shades, and globes.
Rochester Tumbler Company,	4	46	43	431	146,000 00	390 302 60	914,780 dozen tumblers and beer-mugs.
Co-Operative Flint Glass Company, (Limited,)	1	10	46	110	45,000 00	80,000 00	Table goods.
Philadelphia county.							
H. C. Fox & Sons,	3	25	49	234	103 000 00	236,000 00	Druggists' and perfumers' bottles.
Rohrbacher & Hornman,	2	15	46	190	64,002 88	125,000 00	Lamp-chimney, gas, and kerosene globes.
Gill & Murray,	1	8	50	125	70 000 00	130,000 00	Gas and kerosene globes, shades, chimneys, &c.
Burgin & Sons,	1	8	42	176	70,000 00		67,500 gross drug and perfumery ware.
Storm Brothers,	2	16	43	248	80 000 00	175,000 00	Bottles and lamp goods.
Gillinder & Sons,	2	23	48	425	144,256 79	312 820 86	Tableware, lamps, &c.
Wayne county.							
C. Dorflinger & Sons,	2	15	50	263	80 092 70	164,245 95	Flint table, druggists', and cologne ware.

GREEN GLASS.

A TABLE *showing the characteristics and production of the Green Glass Works of the State of Pennsylvania, as reported, for the year ended December 31, 1881.*

NAME OF OPERATORS.	Number of furnaces.	Number of pots.	Number of weeks in operation.	Number of persons employed.	Total amount paid in wages during the year.	Amount of product.	DESCRIPTION OF WARE.
Allegheny county.							
Cunningham & Co.,	1	12	44	108			Green glass-ware.
S. McKee & Co.,	1	8	36	62	$35 000 00	$80,000 00	Beer bottles and drug-ware.
Thomas Wightman & Co.,	2	20	42	167	60,000 00	150,000 00	Green and amber bottles and vials.
Ihmsen Glass Company, (Limited,)	1	8	42	82	43,000 00		18 000 gross green and amber glass-ware.
A. & D. H. Chambers,	2	20	42	200	90,000 00	200,000 00	Vials and bottles, (color) green and amber.
W. H. Hamilton & Company,	3	30	44	246	97,600 03	217,471 07	Prescription bottles.
Monroe county.							
East Stroudsburg Glass Company, (Limited,)	1	5	44	88	40,000 00	70,000 00	Green and amber bottles.
Philadelphia county.							
Dyottville Glass Works,	1	8	36	89	42,000 00		Green glass-ware.
Hero Glass Works,	3	26	29	700	100,000 00	*a* 48,000 00	*a* Gross trimmings.
						b 48,000 00	*b* Gross fruit jars.
Wayne county.							
Honesdale Glass Company,	2	12	42	157	100,000 00	137,500 00	Green, amber, blue; all kinds green glass.

RECAPITULATION.

Number of establishments to whom blanks were sent,	58
Number of establishments not reporting,	9
Number of establishments not in operation,	5
Number of establishments tabulated, (44,)	58
Number of furnaces,	71
Number of pots,	698
Average number of weeks in operation,	44
Number of persons employed,	7,471
Total amount of wages paid during the year,	$2,795,097 47
Value of product,	5,096,983 23
Product, (not otherwise classified,) gross pieces,	181,500 120,000

LUMBER.

A TABLE *showing the characteristics and production of lumber compiled from reports to the Bureau for the year ended December 31, 1881.*

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	Total amount paid in wages during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	*a* Pickets—thousand. *b* Staves and headings—thousand.	REMARKS.
Allegheny county.											
Union Planing Mill Company,	38	51	$30,252 75	3,650,000	575,000	5,000	24,000	1,500,000	100,000		Sash and door factory.
Schuette & Co.,	21	42	9,000 00	3,000,000	1,000,000			900,000			Planing-mill.
S. P. & I. N. Large,	30	43	13,274 60	1,000,000	200,000	100,000			100,000		Saw and planing-mill; barge building.
Stoner & McClure,	50	52					8,000,000				Saw-mill.
McQuenan & Douglas,	6	51	2,860 00	500,000	50,000			400,000			Planing-mill.
Phillips & Mittenzway,	44	52	14,450 00	1,500,000	400,000	600,000			200,000		
Graham & Farmerie,	15	52	9,000 00	500,000	400,000	500,000			500,000		Saw-mill.
John Smith,	1	20	31 25		100	57,800	4,615				Saw-mill.
George McNall,		8				44,000					Saw-mill.
Ritter Brothers,	5	8	144 00			192,000					
H. C. McEwen,						50,585					
George V. Sevin,	4	15	300 00			110,000	32,000				Saw-mill; custom work.
Zerah Hayden,							27,700				Custom saw-mill.
John Strohm & Son,						5,000					Custom saw-mill.
James Guy,	1	4	36 00			17,500					
John Peterson & Sons,	15	33	6,000 00	100,000	100,000						Barge building.
Armstrong county.											
Murphy, McCain & Co.,	30	50	13,102 80	2,000,000	1,000,000	500,000			1,000,000		Saw and planing-mill.
Hill & Co.,	3	4	85 00	15,000	15,800	12,457	3,200				
J. S. Quigley,	6	24	750 00	20,000	50,000	30,000					
P. C. Hetrick,	3	40		100,000	10,000	50,000					
Wilkins & Fullerton,	2	30	500 00	75,000	90,000	100,000	17,000				Saw-mill and box factory.
G. W. Wilkins,	52	35	18,581 26	1,800,000	200,000	225,000		100,000	950,000		Lumber, shingle, lath, and barges.
David Rarich,	1	13	75 00		5,000	12,000	*625,000	10,000			*Made into flooring, siding, and boxes.
Joseph A. Whitacre,					300	2,000	600				2,000 feet oak lath.
R. Sturgen & Son,		24				200,000	50,000		250,000		Custom saw-mill, (portable.)
Isaac Kinnard & Son,	1	6				9,972					

LUMBER—Continued.

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	Total amount paid in wages during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	a. Pickets—thousands. b. Staves and headings—thousand.	REMARKS.
Bedford county.											
John B. Fluck,	5	20	$295 00	10,000	63,000	12,000	28,200			25,000	
Blair county.											
Beyer, Guyer & Co.,	27	50		1,600,000	1,200,000	265,000	35,000				Saw and planing mill.
Martin H. Mackey,	67	52	25,000 00	1,000,000	2,000,000	40,000	55,000	650,000	1,500,000	*a* 50,000	
Cambria county.											
F. H. Barker,	12	12	2,000 00	200 000	150,000					*b* 60,000	
John Brown,	4	17	1,200 00		400,000		250,000				
M. Bracken,	24	45	8 217 00		1,500,000	8,900	220,000		40 000		100,000 feet lath, 400 cords bark.
Thomas Griffith,	30	32	18,000 00	125,000	2,000,000		2,950,000				Product of three mills.
C. R. & H. Himmelwright,	9	26	1,500 00	50,000	368,000	5,000	32,000		100,000		
Lewis L. Edwards,		4			4.000		20,000				Saw-mill.
D. & C. Moore,	15	52		275.717	568,689		40,000	225,000	46,700	*a* 39,140	5,000 broom handles.
William J. Buck,	4	21		100,000	400,000	100,000		1,500,000			
Cameron county.											
Hall & Kane,	17	35		250,000	4,000,000		27,000				Saw-mill.
Andrew Kaul,	34	52	6,370 00	1,800.000	800 000	400 000			700,000		
John S. Wiley,	25	25	4,000 00	500,000	2,000,000	60,000	60,000				
Carbon county.											
Albert Lewis & Co.,	40	52	20,000 00	700,000	2,336,000			43,750	568,900		
Centre county.											
John T. Fowler,	86	40	14,735 28	3,925,753				121,250	841,600		Product of two mills.
Irwin & Lindsey, agents,			1,842 83	116,328	630 878			200,000	202,700		
George Truthinger & Co.,	24	8	2,000 00	900,000	100,000			500,000			
Clarion county.											
J. A. McKinley,				6,000			6,000				
J. G. Ellison,	11	9	700 00	100,000	150,000						
Marvin, Rulofson & Co.,	17	30	6,000 00	3,000,000				500,000			
Hahn, Wagner & Curll,	45	40		2,000,000	1,000,000		50,000	50,000			
Bazard, Ritts & Co.,	18	48	8,798 40	3,500,000							

Wilson & Corbett,	14	26	3,549 00	650,000	560,000	150.000	75,000	. .	490,000	. . . . .	21 boats built.
Wilson & Greenland,	16	30	4,680 00	830,000	750,000	300,000	150,000	516,000	. . . .	. . . . .	288 000 feet pine and hemlock lumber, additional, used in constructing 36 boat bottoms. 75,000 cubic feet square timber delivered to market.
Clearfield county.											
Charles Blanchard,	25	38	11,305 00	5,000.000	2,000,000	115 817	100.000		1,000,000		
Hoover, Hughes & Co.,	274	45	133,412 50	7,158,238	3,626,575	920,449	766 003	1,168,500	3,296,700	*a* 566.640	Product of four mills.
							*6,142,401				* Worked into flooring, sash, doors, &c.
Moshannon Land and Lumber Co.,	38	16	10.136 67	1,830,623	1,948,575	. .	13,240	131,600	964.800		
D. K. Ramey & Co.,	56	50	20,642 06	5,749,337	1,684,578	180,000	. . . .	154,100	1,607,000		
Clinton county.											
Homewood Mill Company,	49	28	9 436 00	4,000.000	2.000,000	. .		200,000	700,000		Custom saw-mill.
Kreamer, Mann & Co.,	62	41	23,000 00	9,660 000	2,312,000	255,000	2,615,000	. . .	2,169.100	*a* 620,100	
McCormick & Co.,	44	22	11,000 00	5 000,000	1,000,000	. . .	. .	. . . .	400,000	*a* 550,000	
Columbia county.											
Freas Brothers,	40	52	16,000 00	4,200 000	220 000	50,000	217,500	360,000	350,000	. . . . .	Planing-mill.
Crawford county.											
B. M. Sherwood's Sons,	59	52	12 000 00	500,000	2,000,000	50,000	385,000	. . . .	900,000	. . . . .	330.000 shovel handles.
John Mallery,	3	10	141 75	5.656	6,000	59,325	41,782				
G. W. Hoig,	7	26		25 000	450.000	100,000	25,000	50,000			
McGranahan & Allen,	11	36	3,700 00	500.000	100,000	800 000	70.000	1,000,000			
George Dewey,	1	25	150 00	2,000	120.000	10 000	45,000	. . . .	. . . . .	. . . .	Custom saw-mill.
Terrill & Dunn,	. .	.	.	3,000	100,000	. . .	40 000				
J. P. Williams & Co.,	4	12	252 00	. . . .	15,000	. . . .	51,089				
Milton Porter,	7	14	478 00			. . . . .		. . .	. . . .	*b*250 000	Staves and headings.
John Ward,	7	25	1,612 50	100,000	1,200,000	. . . .	100,000				
Cumberland county.											
William Zeigler,	46	24	3,392 00	180,000	. . . . .	145,000	70,000	. . . . .	42,000		
Dauphin county.											
A. Douden,	11	52	3,724 00	800,000	200,000	5 000	8,000	1,425,200	20,000	. . . .	Saw and planing mill.
Weaver & Co.,	14	40	4,726 00	264,515	263 292	4,872	61,875	2,425,000	120,000		
Elk county.											
W. H. Hyde & Co.,	29		. . .	2,500 000	3,500 000	. . . . .	.	500,000		. . . . .	Product of four mills.
B. F. Ely,	20	30	5,500 00	350,000	4.200,000	. . . . .	50,000	. .	100,000		
J. R. Prentiss & Son,	19	32	7,547 00	. . . . .	4 776,910	. . . . .	550,747	. . . .	. . . .	. . . . .	Saw-mill.
Erie county.											
Thomas Woods,	9	30	2,000 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	. . . . .	Staves and headings.
Fayette county.											
Irwin & Rutter,	10	45	3,416 72	243 284	266,988	12,164	4,668	266,000	147,200		
Forest county.											
A. Cook,	25	24	5,500 00	1.200,000	400,000	75,000	. . . . .	. . . .	100,000		
Hall & May,	20	16	. . . .	1,100,000	300,000						

LUMBER—Continued.

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	Total amount paid in wages during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	a Pickets—thousand. b Staves and headings—thousand.	REMARKS.
Forest county—Continued.											
Wheeler, Dusenberry & Co.,	30			2,500,000					1,000,000		
Dickey, Darrah & Co.,	10	17		180,000						a 75,000	
J. H. Derickson & Co.,	16	25	$7,000 00			350,000	90,000				
Watson & Roat,	17			2 000,000							
Indiana county.											
Black Lick N. & F. Improvement Company,	13	34	3 231 13		1,000,000		95 000		100.000		
Enterprise Lumber Company,	8	45	1,600 00	348 000	250,000				75,000		Saw and planing mill.
P. Kinports,	7	30	1.350 00	2,000 000	50,000	50,000		100,000	200,000		
Jefferson county.											
Jackson, Verstine & Co.,	17	40	12,000 00	4,500,000	500,000	250,000			1,200 000		
Lackawanna county.											
Joshua Yost.	17	52			1,524,000		150,000		300.000		Steam saw-mill.
J. D. Kizer & Co.,	8	40			600.000		10,000		25,000		
J. P. Moore,					70,000	2.000					
E. A. Smith & Son,		12		18,209	35 000	23.000	32 567				
W. Dale & Son,	17	52	5 650 00	20,000	2,500.000	40,000	440,000		3,000,000		
Daniel Baum,	13	52	4 000 00		2,000.000		300,000				
William K. Beck,	7	38	2,000 00		700,000		280,000				
Luzerne county.											
A. Pardee & Co.,	4	26	546 00		500 000						
A. J. Hess,	3	10		200,000	100,000		50,000				
Lycoming county.											
Jacob Edler,	13	48	2,352 00	100,000	25,000	70,000		50,000		b 583,000	Staves and headings.
John Fry,	4	4						120,000			Shingles.
Bowman, Foresman & Co.,	90	35		19 000,000	2,000.000				2,500,000	a 500,000	
Brown, Earley & Co.,	55	32		14.291,216	1,177,084				5,298.400		
F. Coleman,	80	31	26,678 11	11 244,914		78,540	11 468		3,978,700	a 489,610	Saw-mill.
				*273,282	* 4,477,084		*83,398				*Sawed for other firms.

Emery & Reading,	86	30	30,000 00	13,000,000	1,500,000				1,700,000		
Edgar Munson,	47	34	19 283 70	11,235,650					2,206 500		
Woolverton & Tinsman,	70	35	25,000 00	12,800,000	1,000,000	50,000			4,300,000		
Jacob Barto,	19			50,000	40,000		70,000	60,000			Saw-mill.
Bodine & Warn,	10	28	2,660 00		2,000,000	500,000					
Peter D. Corson,				5,000	40,000	2,000		7,000	10,000		Saw-mill.
H. C. Freek,	29	6	2 315 74		1,188,769						
D. Clapp & Co.,	33	31	10,900 00	523,165	1,546,198	662,598	98,310	5 358 600	370,600	*a* 141,280	
J. D. Budman & Brother,			400 00		180.000	10.000			304,000		
Joseph O. Kreamer,	8	6		30,000	300,000	7,000	7,000		27,000		
Edward Lyon,	40	40	11,000 00		8,000,000	40,000					
Thomson & Messimer,	12	26	3,088 80					3,218 650			Shingles.
McKean county.											
L. B. Hoffman & Co.,	28	26	10,000 00	2,500,000	500,000			500,000	600,000		
F. H. Goodyear,	20	44	11,000 00	300,000	5,000,000		100,000				
Northampton county.											
Wise Brothers,	12	17	1 700 00								
Northumberland county.											
Cook & Pardee,	30	36	12 569 86			6,300,000		63,500	102,600		
Potter county.											
Potter County Forest Improvement Company,							100,000				
O. G. Metzger,	4	36			500,000		200,000		200,000		
George Crouch,	2	2	30 00		1,700	800	1,000				
Leonard Davis,	18	52	9,000 00					4,000 000			Shingle mill.
Hackett & Leach,	2	25	450 00		400,000		30,000	225 000			
T. J. Farnham,	3	6	117 00					350,000			
Charles Head,	3	24	548 00	180 000	250,000		15,000				
W. J. Brown,	10	24	300 00	50,000	250,000	25 000	130,000	298,000			
A. G. Lyman,	9	14	1,176 00	200,000	100,000		612,000				
L. W. Crawford,	4				200,000		25,000				100,000 feet planed.
Snyder county.											
Hassinger, Walter & Co.,	12	32	3,216 00	200,000	16,000	420,000	91,000				
Sullivan county.											
Jonathan Rogers,	6	20			300,000		135,000				
Walter Spencer,	7	5	300 00		300,000		22,000		20,000		
Jacob Fuller & Co.,	8	18	3,000 00		1,000,000		670,000				
Susquehanna county.											
H. S. Montgomery,	3	12	870 00		250,000		20 000				Custom saw-mill.
Warren county.											
J. W. Agrelius,	11	40	1,500 00					200,000	25,000	*b* 1,500,000	
Bates & Philles,	10	24	1,500 00	100,000	1,800,000	50,000	120 000				
E. B. Hyde,	8	40		250,000	125,000	8,000	70,500	400,000			
S. L. Birt,	3	36	650 00					1 050,000			Shingle mill, (custom work.)

LUMBER—Continued.

BY WHOM OPERATED.	Number of persons employed.	Weeks in operation during the year.	Total amount paid in wages during the year.	White pine—feet.	Hemlock—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	*a* Pickets—thousand. *b* Staves and headings—thousand.	REMARKS.
Warren county—Continued.											
W. C. Welton,	10		$2 750 00							*b*3,600,000	Stave mill.
Z. Mielde,	25	50	3,000 00	2 000,000	900 000	100,000		1,000,000			
Schoellkopf, Horton & Co.,	10	40	3 600 00	200,000	800,000		220 000				
L. S. Hyde,	7	20	1 392 00					500,000			Shingle mill. (Burned May 24, 1881.)
Haggerty & Davis,							500,000	100,000			Custom mill.
H. G. Strong,	2	20	280 00		160.000		20,000				
Henriei & Lenz, Trustees,				416 295	60,000	20,000		30 000			
L. F. Watson,	16	13	2,400 00	1 300,000							
Samuel Grossenburg,	1	8	72 00		5,000		3,000				
L. T. Borchers & Co.,	24	52	10,985 00	1 200.000	3 540,000	20,000	240.000		379,000		
							*400 000				*Manufactured by L. P. Rogers & Bro.
J. Laycock & Son,	26	20		500 000	1.000.000	100,000	75 000		100.000		
D. H. Donaldson,	2	26	258 79	38,496	145,350	5,940	26,989		100 000		
Charles Lopus,	7	12	686 50		300,000	25 000	50 000				
C. S. Morton,	10	32	2 611 90	500.000	1 500,000	75 000	275,000	100 000			
W. S. Thompson,	12	20	3 000 00	500,000	100 000	20,000	40,000				
M. B. Dunham,	23	28	6.000 00	900,000	100 000						33,000 cubic feet square timber.
M. J. Morrison,	15	25	3.110 00	200 000	425,000	30,000	45 000				
E. Reynolds,	2	16	184 00					142,000			Shingle mill.
Gilbert Turner & Son,	18	52	8,000 00		2.000 000	70.000	393,000				Product of two mills.
James Dunham,					50,000						Saw-mill.
P. M. Smith,		12		50 000	300 000			50,000	300,000		25,000 cubic feet square timber.
C. S. Cole,	2			4,000	40,000	2,000	34,000				
J. H. Dickinson,	8	20	1 188 00	12.000	390,000		130.000				
Benjamin & Hills,	8	40		250 000	1,000,000	2,000	140,000		300,000		
Martin & Co.,	10	20		1 000 000							Contract work.
Hill & Andrews,	13	22	3,415 02	1,150,000	1,150 000	45.000	8,000		750 000		
E. W. Ross & Son,	40	40	5,000 00	1 500 000	4.000	75.000	125.000		40,000		
Green Clark,	2	40	600 00	50,000	10 000	25,000	75 000				
Hazeltine & Dupree,	9	26	1,456 00		576,532		22 249				
A. W. Jones,	3	28	200 00		400 000	11,000	64,500				
T. Kay,				10,000	40,000		50,000				
Wesley Milspaw,	7	3			75,000		10,000				

John McNair & Co.,	27	52	12.000 00	500,000	2,000 000							
Brown Brothers & Co.,	27	52	13,939 60	220 000	3 500 000	25,000	30,000					
E. Barnes,	7	12	878 00	500,000	20.000							Saw-mill.
C. C. Thompson,					300,000							
T. P. Baker,	3	20	350 00	240.000	50 000		30 000		50.000			
W. J. & J. Slater,	16	24	6,500 00	1 400,000	200,000	75,000	10 000		305.000	a14,000		
Washington county.												
John Withrow,	1	12	200 00	1,000		50,000	3 000					
R. B. Davis,	4					300,000	7,500					
Wayne county.												
Mitchell & Hollister,	8	24	1.728 00	10,000	600.000		145 000					
William Wallace,	6	40	1,000 00		500 000		200,000		330,000			
Wyoming county.												
B. S. Gardner & Son,	2	26	450 00	15,000	350,000		23,000		200,000			
York county.												
Isaac Frazer,	24	42	7,904 40	2,000,000	500,000	310,000	36,500	250,000	650,000			

RECAPITULATION.

Number of establishments to whom blanks were sent,	457	Number of persons employed, as tabulated,	3,265
Number responding as in operation,	180	Average number of days worked during the year,	176
Number responding as not in operation,	39	Total amount of wages paid during the year,	$869,553 92
Number not responding,	238		

PRODUCT.

White pine, feet,	201 041.708	Lath, feet,	102,000
Hemlock, feet,	125 453,402	Planed lumber, feet,	100 000
Oak, feet,	17,271,719	Square timber, cubic feet,	133,000
Other lumber, feet,	31,640,601	Broom-handles,	5,000
Shingles, M,	33,059,150	Shovel-handles,	330,000
Lath, M,	48.489,500	Bark, cords,	400
Pickets, M,	3,050,770	Boats,	57
Staves and headings, M,	5,993,000		

TANNERIES.

COUNTY.	Number of establishments.	Number of days in operation	Number of persons employed.	Total amount paid in wages during the year.	Number of sides of sole.	Number of sides of harness.	Calf.	Other leather.
Adams,	1	. .	2	$410 00	12	. . . . .	36	30
Allegheny,	8	306	173	86,953 22	64,000	37,400	28,800	33,400
Armstrong,	7	310	19	7 569 40	. . .	937	182	5.363
Beaver,	2	300	3		600		200	144
Bedford,	8	309	135	48,339 00	77,400	300	200	2,300
Berks,	11	302	29	6 634 00	12,650	3.000	1,235	3,800
Blair,	7	291	75	26,436 14	62,600	10,000	650	9,130
Bradford,	7	273	65	26,865 00	73,750			1 550
Bucks,	6	310	17	3,106 00		600	140	2,100
Butler,	2	310	7	. . . . .	.	900	.	700
Cambria,	3	306	14	4.461 50	250	8,150	110	110
Cameron,	2	306	106	35 676 94	114,783			
Carbon,	1	312	8			8,000		
Centre,	4	312	63	26,755 61	84,523	400	150	150
Chester,	3	308	15	4,168 00	6,000	. . .	1,720	
Clarion,	1	312	1					
Clearfield,	5	307	65	25,700 00	71,320	. .	275	300
Clinton,	2	306	73	34,000 00	105.900			
Columbia,	3	312	14	4,500 00	300	. . . .	100	6,000
Crawford,	6	266	39	12,521 25	. .	. .	30,690	24 760
Cumberland,	6	256	25	6 232 13	17 988	. .	300	45
Dauphin,	8	305	57	23,766 65	4 000	13 855	1,600	2 240
Elk,	5	294	411	164,800 00	363.000			
Erie,	9	311	72	29.175 00	45,900	. .	1,500	300
Fayette,	6	279	42	9,966 00	12,000	10,870	. . . .	50
Forest,	1	312	110	41,081 49	88,000			
Franklin,	8	297	21	5.012 00	7.500	4,876	860	2,300
Fulton,	4	307	33	8,000 00	24,000	40	50	50
Greene,	1	200	2			600	100	50
Huntingdon,	5	292	45		750		. . . .	24 000
Indiana,	2	340	4	1,300 00	1,000	1,375	. . . . .	200
Jefferson,	3	231	2	660 00				
Juniata,	3	312	16	1,200 00	2,350	. . .	150	600
Lackawanna,	5	284	101	34,140 00	64,928			
Lancaster,	14	308	96	26,915 20	1,500	37,150	2 000	3,712
Lawrence,	1		2			1,000	60	
Lebanon,	3	292	11	2,782 00				1,512
Lehigh,	7	300	17	3,190 00		3,250	1.100	1,400
Luzerne,	6	308	45	16.358 00	11,700	5,560	2,000	
Lycoming,	13	301	229	13,650 00	220,946	2 250	1,311	2,000
McKean,	1	310	31			18,000	. . .	45,000
Mercer,	1	312	3				.	800
Mifflin,	3	232	6	1,500 00		1,200	400	
Monroe,	3	313	109	44 407 60	76,000			
Montgomery,	7	291	19	3 551 00		. .	. . . .	2,000
Montour,	3	233	7	1,200 00				
Northampton,	2	300	10			. .	17,000	
Northumberland,	6	280	33	11,240 00	1,840	120	5,250	185
Perry,	3	290	51	21.000 00				
Philadelphia,	21	301	280	137,858 21	21,200	844	14,400	113,676
Pike,	1	300	6	1,800 00		1,200	400	
Potter,	2	313	90	36,655 85	60,000			
Schuylkill,	4	310	20	6,740 00	9,500			
Snyder,	2	200	4	500 00				
Somerset,	7	253	9	1,500 00	500	100	350	1 350
Sullivan,	4	309	216	29,319 00	100,000			
Susquehanna,	11	291	316	101,109 68	150 677		. . . .	104,500
Tioga,	10	306	238	89,502 83	304,234	1,800		
Union,	1	313	5	890 00	. . .		. . .	1,800
Venango,	1				. . . . .	300	300	
Warren,	8	307	373	141,866 00	177,950			
Washington,	1	300	2	500 00				
Wayne,	7	283	136	39 977 35	60.774			
Westmoreland,	6	303	6	2,282 70	800		200	6,400
Wyoming,	6	301	115	23,255 69	76 000	1,000	530	530
York,	9	294	51	17,492 00	34,200	600	1 000	

RECAPITULATION.

Number of tanneries to whom blanks were sent,			983
Number of tanneries not reporting,		518	
Number of tanneries not in operation,		136	
Number of tanneries tabulated,		329	
			983
Average number of days in operation,			294
Number of employés,			4,400
Total amount paid in wages during the year,			$1,456,412 44
Number of sides of sole leather,			2,613,325
Number of sides of harness leather,			175,617
Calf skins,			115,349
Other leather,			404,537
Product, (not otherwise classified,)			$2,727,581 12
	dozens,		9,744
	pieces,		300,000
	pounds,		13,992,151

TEXTILE FABRICS.

A TABLE *showing the characteristics, production, etc., of textile fabrics in the State, compiled from reports to the Bureau, for the year ended December 31, 1881.*

CARPETS AND CARPET YARNS.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	*a* Power looms. *b* Hand looms.	Other machines.	PRODUCT. *a* Yards of carpet. *b* Pieces of carpet. *c* Pounds of yarn.	GOODS MANUFACTURED.
Lancaster county.								
John W. Sohn,	300	5			2	2		Rag, jute, and diamond cottage carpets, also cotton and woolen half hose.
Philadelphia county.								
Samuel Allen,		6	$1,937 82				*a* 24,024	Cotton ingrain carpet.
Robert Anderson,	308	39	9 978 00		*b* 29		*a* 78,213	Ingrain carpet.
F. & C. Binz,	300	27	7,500 00				$28,000 00	Ingrain and cottage carpet.
Erhard Biswanger,	300	24	11,610 00				39,874 00	Ingrain carpet.
Spencer C. Black,		6			12		*a* 10,0 0	Damask and Venetian stair carpet.
James Bole,	273	38	13,128 30		*a* 30		*a* 156.465	Ingrain carpets.
George Born,	235	18	4 948 02		13		*a* 41 982	Cotton and wool carpet.
George Breitling,	250	11	2 532 00		12		*a* 26 375	Ingrain carpet.
Thomas R. Burns,	310	12	4,495 00	4	8	3	*a* 54,496	Cotton carpet.
Arch. Cameron,	300	26	8.645 00		21		*a* 20,250	Gordon Axminster carpet.
William Carey,	270	14	4 050 00		9		*a* 11,825	Ingrain carpet.
John Cross,	307	19	5,154 40		13		*a* 42.120	Cotton and wool ingrain carpet.
William Culbertson,	305	30	50 569 00		24		*a* 112 320	Cotton and wool ingrain carpet.
Daniel Currie,	256	36	14 943 00		24		*a* 109.200	Ingrain carpet.
Davis & Rath,	260	68	21,399 00		50		*a* 195.000	
John Dietz,	300	9	3 308 00		9		*a* 41,360	Rag carpet.
James Dougherty & Co.,	310	11	3,800 00		9		*a* 10 000	Cotton carpet.
William Erskine,		23	6,000 00		*b* 16		*a* 60,000	Ingrain carpet.
James Finley,	308	12	3,240 00		6		*b* 180	Cotton ingrain carpet.
G. Fordtran,	300	9			7		*a* 30,000	Ingrain, rag, and cottage carpet.
James Galbraith,		42	14,400 00		*a* 12 *b* 16		*a* 125,000	Ingrain carpet.

David Graham,	308	33	9,000 00		*b* 25		*a* 112 500	Ingrain carpet.
James Hogg & Son,	358	116	30,000 00		*a* 23		*b* 3,000	Body brussels extra super, and medium ingrain carpet.
					b 8			
Arch Holmes,	305	35	11,742 50		24	8	*a* 117,000	Cotton and wool carpet.
Henry Holmes,	309	50	38,915 46		*a* 14		*a* 390,000	Ingrain carpet.
					b 19			
Julius Kuntz,		8			8		*a* 25,000	Ingrain carpet.
McCallum, Crease and Sloan,	313	275	102,946 00	5,010	78		*a* 322,055	Body brussels, Wilton and ingrain carpet.
							c 968,706	Woolen and worsted yarn.
Sampson McDowell,	308	89	27,588 93		*a* 21		*b* 2,042	Ingrain carpet.
					b 45			
Robert McKinney,	300	15	5,040 00		*b* 11		*a* 47,250	Eight pair worsted, and eight pair cotton chain carpet.
James Martin,	306	16	6 294 76				*a* 65,000	Ingrain carpet, (cotton.)
Edwd. C. Read,	311	30	13 200 00		20		*b* 681	Cotton ingrain carpet.
S. C. Ridpath,	300	75	22,000 00		52		*a* 390,000	Ingrain, cottage, and Venetian carpet.
Ross & Getty,	308	50	25,000 00	65	33		*a* 200,000	Ingrain carpet.
Leopold Seckinger,	310	24	5 600 00		12		*a* 50,000	Cotton and wool ingrain carpet.
Andrew Stevenson,	300	22	11,700 00		*b* 17		*a* 79,560	Ingrain carpet.
William Stewart's Sons,	250	51			51		*a* 50,000	Carpet rugs, mats, and cross-steppes silks.
Stinton Bros. & Kurlbaum,	307	125	40,000 00		33		*a* 225,000	Tapestry, Brussels, and Smyrna rugs.
Louis Stremmel,	313	27	11,000 00		19		*a* 62,500	Cotton and wool carpet.
Joseph Taylor & Son,	312	52	24,000 00		30		*a* 300,000	Extra super ingrain carpet.
A. Thompson,	300	9	5,110 00	3	7		*a* 22,500	Ingrain carpet.
James Winchester & Son,	298	13	4 914 85		10		*a* 46 139	Wool and worsted ingrain carpet.
Thomas Boyland,	300	15	4 000 00		11		*a* 31,500	Cotton ingrain carpet.
William Whitaker & Sons,	306	123	40,186 52		*a* 40	5	*a* 175 200	Carpets, worsted and woolen yarn.
							c 140,000	
William Montgomery,		7	1,728 00		6		*a* 18,000	Cotton and wool carpet.
R. Alexander & Son,	310	16	6,200 00		12		*a* 62,400	Ingrain carpets.
Alex. Beck,	310	94	37,677 40		61		$210,039 61	3-ply ingrain and damask carpets.
Robert Bole,		25					*b* 600	Ingrain carpet.
John Bromley & Sons,	305	449	170,000 00		*a* 96	5	*a* 796 040	Carpets, rugs, and upholstery goods.
					b 81		*c* 514 101	Yarn.
William Campbell,	310	6	2 080 00	2	4		*a* 27 040	Cotton and wool carpets.
George Carson,	308	36			27		*a* 73,625	Cotton and wool carpets.
Robert Carson,	300	107	65,500 00		75		*a* 422 500	Ingrain carpet.
Thomas Develon,	311	35	15,480 00	10	24		*a* 117,000	Ingrain carpet.
Philip Doerr & Sons,	305	62	17,000 00		35		*a* 150,000	Ingrain carpet.
Jacob Fox,	302	30	7,800 00	5	19		*a* 121,500	Cotton carpet.
Gibb & Co.,	310	17	7,600 00		12		*a* 48 000	Rag carpet.
James Gilmore,	310	19	9,000 00		*b* 13		*a* 169 000	Stair carpet, (wool and jute.)
John P. Graham,	308	15	6,000 00		15		*a* 65,000	Cotton and wool carpet.
Robert Huston,	311	95		75	*a* 27		*a* 350,640	Ingrain carpet.
					b 30			
William Jamieson & Son,	308	23	9 000 00		17		*a* 73 000	Worsted and wool, and cotton ingrain carpet.
John McDade & Co.,	305	28	8,500 00	50	18		*a* 80,500	Ingrain and damask stair carpet.
William McNeill,		18		4	8			Wool and cotton carpet.
Thomas Maywhirter,		7	1,627 20		*b* 5		*a* 19,152	Cotton and wool carpet.
Montague & White,	308	104		2,386	14		*a* 150 000	Carpets.
							c 600,000	Carpet, raw silk, and worsted yarns.
John Morgan,	300	17	4,666 00		12		*a* 15 221	Carpets.
Hugh Nelson,	305	23	13,000 00		17		*a* 86,670	Cotton and wool ingrain carpet.

CARPETS AND CARPET YARNS—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	*a* Power looms. *b* Hand looms.	Other machines.	PRODUCT. *a* Yards of carpet. *b* Pieces of carpet. *c* Pounds of yarn.	GOODS MANUFACTURED.
John Smith,	294	22	$11,000 00	....	18	..	*a*76,000	Cotton and wool carpets.
John G. Sonneborn,	308	29	11,000 00	....	22	..	*a*110 000	Ingrain carpets.
Thomas Spence & Co.,	234	25	7,500 00	....	17	..	*a*79 800	Ingrain carpets.
Thomas Taylor,	300	66	33 100 00	....	*a*32	..	*a*234 000	Ingrain carpets.
John Winchester & Son,	298	18	...	....	14	..	*a*57,000	All wool carpet.
A. S. Jennings & Co.,		31	6,404 00	...	*a*5	..	*a*76,125	Cotton ingrain carpet.
					*b*18			
William Judge & Bro.,	300	250	120,000 00	....	175	..	*a*1,250 000	Ingrain carpet.
Thomas Caves,	310	34	20,000 00		15	..	*a*143 000	Ex-super ingrain carpet.
Alexander Crow & Son,	300	403	150,000 00	4,300	200	..	*a*1,356,600	Brussels, ingrain, and damask carpet.
							*c*800,000	Worsted and woolen yarn.
Ivins, Deitz & Magee,	300	214	89,573 26	....	*a*45	..	*a*671 400	Ingrain carpet.
					*b*97			
S. Keightly,	300	11	6 150 00	..	12	..	*a*58,000	Ingrain carpet, (8 pair.)
H. Lawrence & Son,	300	95		672	30	..	*a*503,200	Jute goods.
Thomas E. Rowbotham,	308	28	7 000 00	..	20	..	*a*91,000	Ingrain carpet.
George Treude,	308	41	9.620 00	..	32	..	*a*77,000	Cotton and wool carpet.
John Boggs,	300	90	21.600 00	20	60	..	*a*334 800	Worsted and wool filling carpet and cotton carpet.
Boggs & White,	300	210	62.400 00	45	150		*a*633 100	Ingrain carpet.
Bromley Bros.,	300	325	100.000 00	1,800	*a*72	9	*a*1,000,000	Three-ply and ex-super ingrain and damask Venetian.
					*b*104		...	
Robert Givens,		22	8,000 00	...	18	..	*b*600	Cotton carpet.
Charles B. Kranse,	306	43	15.800 00	..	38	..	*a*273,000	Venetian and cottage carpet.
William McHatton,	308	10	4,614 32	...	12	.	*a*34 639	Cotton and wool carpeting.
David Morgan,		43			26		*a*78,000	Ingrain carpet.
H. Petzoldt,	308	14	6 084 00	6	12	.	*a*62 000	Cottage and rag carpet.
John W. Priestley,	208	15	...		30	.	*c*12 000	Smyrna goods.
Jacob Schumacher,	320	24	6.960 00	.	16		*a*56 000	All wool and cotton carpets.
Thomas McCracken & Son,	300	63	37 960 00	38	36		*a*81 120	Carpets and Turkish rugs.
Samuel Gray,	310	17	5 406 00	..	*b*13		*a*66 600	Stair and entry carpet.
Josiah Galbraith,	307	19	7,300 00	.	15	.	*a*67.500	Ingrain carpet.
Robert Galbraith,	307	8	2,800 00		13	.	*a*27.040	Ingrain carpet.
James H. Gay,	308	185	95,000 00	110	*a*86		*a*805,000	Ex-super ingrain.
					*b*6			

Thomas Buckley & Son,	300	14	4,500 00			*b*20		*a*46,000	Cotton carpets.
James Doak,	310	20	10,000 00		24	*b*14		*a*62,400	Ingrain carpet, (9 pair)
William Hunter & Son,	308	60	32,651 00		147	*a*15		*a*121,440	Ingrain and damask carpet.
						936			Pieces upholstery goods.
Moore & Brother,	260	28	13,122 20		5	16		*b*500	Ingrain carpet.
E. Highland,	308	10	2,000 00			8		*a*35,700	Cotton ingrain carpet.
Thomas L. Leedom & Co.,	310	321	115,000 00		238	252		*a*1,000 000	Carpets.
John & James Dobson,	300	1 375	450,000 00			350		*a*2,500,000	Carpets. (*Estimated.)

COTTON GOODS.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	PRODUCT. a Number of yards. b Number of pounds. c Number of pieces.	GOODS MANUFACTURED.
Allegheny county.							
Eagle Cotton Mill Company,	300	420	$85,015 17	12,000	274	*a* 3,043 868 *b* 1,691,567	Sheetings, cotton carpets. Yarns, carpet chain, twine, wick, batting.
Penn Cotton Mill,	296	262	58,737 35	8,844	229	*b* 1,125,371	Sheetings, seamless bags, and carpet chain.
Berks county.							
Garner & Co.,	302	212	50,885 51	15,800	320	*a* 2,654,805	39 inch twilled goods.
Chester county.							
S. M. McClure, agent,	306	50	11,991 63	1,512	56	*a* 600.000	Jeans.
I. W. Smith,	310	72	27,000 00	1,250	82	*a* 600,000	Kentucky jeans and cottonades.
Dauphin county.							
George Calder, junior,	300	262	47,256 00	8,320	281	. . .	Cheviots, drills, twills, and ducks.
Delaware county.							
Samuel A. Crozer & Son,	308	386	153 058 82	18,098	467	*a* 7,009,129	Plaids, ginghams, checks, &c.
J. G. Fell,		28	7,921 13	. .	60	*a* 605,760	Cheviots, osnaburgs, &c.
J. W. Lewis & Co.,	308	250	80,000 00	8 040	300	*a* 4,200.000	Ginghams, plaids, checks, and cheviots.
James Stephens,	304	118	37,267 37	9,048	85	*a* 829,668 *b* 522,020	Ticklngs, warps, and cops.
Executors of estate of Robert Patterson,	305	235	51,634 10	14 088	300	*a* 2 290 376 *b* 486,625	Brown drills and sheetings and market yarns.
Samuel Riddle & Son,	280	331	84 000 00	15 000	363	. .	Tickings, cheviots, and osnaburgs.
Branagan & Lamb,		72	25.000 00	1,740	90	*a* 94,000	Kentucky jeans.
D. Trainer & Son,	300	272	75,000 00	21.000	150	*a* 1 100,000	Omega tickings.
Sellers Hoffman,	280	140	34,200 00	9,768	293	*a* 950.000	Ginghams, cheviots, jeans, cottonades.
The Parkmount Mill Company, (limited,)	300	80	30 000 00	1,440	80	*a* 75,000	Cotton piece goods.
Charles Roberts,	312	126	31,200 00	4,028	148	*a* 1.350 000	Tickings, denims, cheviots, jeans.
N. L. Yarnall,	300	66	. .	1.352	88	*a* 104 000	Kentucky jeans.
Daniel Lees & Co.,	134	23	3,846 86	1 260	34	*a* 120 870	Kentucky jeans.
Samuel G. Levis & Son,	300	154	54,148 99	2,900	160	*a* 1,718,490	Cottonades.

Lancaster county.							
George Calder, junior, & Co.,	307	176	33,333 00	2,856	104	*a* 1,560,000	Ducks and drills.
John Farnum & Co.,	308	715	192,000 00	24,792	635	*a* 5,994,137	Ticking, awnings, and 10-4 sheetings.
F. Shroder & Co.,	308	253	54,236 93	11,076	286	*a* 3,528 059	Fine brown shirtings and sheetings, jeans and genuine nankeens.
George Calder, junior,	308	175	31,882 10	2,000	91	*a* 809,179	Awning stripes overalling, and ducks.
Montgomery county.							
William Simpson & Sons,	250	150	36,000 00	10,000	228	*a* 2 235,672	Print cloths.
F. D. Farnum,	287	150	35,965 73	3 824	161	*a* 1,127 650	Colored cotton.
William Clegg,	288	37	14 000 00	572	40	*a* 313,225	Cottonade.
J. & S. Lees,	298	152	41,147 46	6 176	132	*c* 24,429	Cottonade.
William L. Cresson & Co.,	308	60	. .	2 000	42	*a* 241,927	Jeans and warp yarns.
						b 37,000	
Worrall & Ratcliffe,	298	77	24,600 00	1,550	88	*a* 579,900	Kentucky jeans.
William Watt,	288	80	20,000 00	1,632	90	*a* 500,000	Jeans.
Samuel Tinkler,	303	56	17,196 06	1,260	72	*a* 494,266	Five-leaf cotton doeskins.
J. & J. Shaw & Co.,	282	82	27,015 65	1,482	82	*a* 437,000	Jeans.
J. & J. Shaw & Co.,	282	50	14 838 86	1,248	64	*a* 335 000	Jeans.
Northampton county.							
Henry McKeen Company,	305	228	. . . . .	8,000	384	*a* 2,000,000	Stripes, denims, ticks, and muslins.
Philadelphia county.							
William Atkinson,	308	48	31,675 00	. . . .	84	*a* 1,233,200	Cotton.
A. Backer & Co.,	300	133	45,000 00	3,128	152	*a* 1,500,000	Plaid, osnaburgs, ginghams, and ducks.
Beswick & Kershaw,	302	24	. . . . .	. . . .	36	*a* 500,000	Ginghams.
Bradbury Bros.,	306	44	12,148 42	. .	80	*a* 207,080	Cotton and jute damasks.
The A. Campbell Manufacturing Company,	308	752	300 000 00	24 000	824	*a* 8 000 000	Ginghams, checks, osnaburgs, and colored cottons generally.
Clarke & Co.,	290	43	27 500 00	.	101	*a* 99 900	Cotton goods.
James Connelly & Son,	309	60	27,810 00	.	120	*a* 1,000,000	Cheviots.
Henry Dale's Sons,	308	30	11,920 00	. .	42	*a* 260,000	Turkish towels, terry cloth, &c.
John Dallas' Sons,	360	205	60,000 00	.	318	*a* 4 200 000	Cotton goods.
Robert Dallas,	300	46	14,475 00		64	*a* 600,000	Ginghams, cheviots, and plaids.
Emlen & Co.,	305	54	20 000 00	. .	105	*a* 950 000	Ginghams, dress-goods, cheviots, &c.
James J. Hanson,	300	8	3,624 00	.	20	*a* 100 000	Cotton dress-goods.
Henry Landless & Son,	275	12	3 300 00	. .	16	*a* 168,000	Cotton dress-goods.
James Long, Bro. & Co.,	297	182	68 500 00	. .	371	*a* 3,000,000	Checks, ginghams, osnaburgs, &c.
Matthew Murphy,	110	27	7,800 00	. .	24	*a* 4,512 000	Suspender webs and bindings.
Ross, Campbell & Co.,	275	124	38,500 00	.	180	*a* 1,323 800	Cotton woven piece goods.
John Rothwell & Son,	307	50	25,594 58	. . .	72	*a* 663 120	Turkish towels.
John Sidebotham,	300	14	4,100 00	. .	16	*a* 4 344,733	Tapes.
						b 2,588	Webbing and wick.
William P. Troth, junior, & Co.,	297	87	30,000 00	. . .	157	*a* 1 500 000	Cotton goods.
W. S. Weil's Sons,	300	76	24 000 00		26	*c* 120 000	Quilts.
William Whitaker & Sons,	306	196	64 045 65	10 000	212	*a* 1 386 000	Tickings.
Stephen Wood,	300	21	6,510 00		40	*c* 9,070	Ginghams, 12 000 dozen Turkish towels.
Briggs & Bro.,	300	70	25,000 00	1,398	58	*a* 600,000	Double and twist cottonades.
Charles Crankshaw,	300	22	8 206 59	432	26	*a* 187 200	Jeans.
John Culbertson & Son,	300	100	35,000 00		150	*a* 1 800,000	Balmoral skirts and cheviots.
Edward Heald,	303	160	51,100 00		190	*a* 2,130 806	Balmoral skirts and ginghams.
McLaughlin & Reilly,	308	58	22,360 76	1,368	64	*c* 11,781	Jeans.
C. J. Milne,	305	165	62 000 00	2,010	260	*a* 3,050,000	Checks and cheviots.
Ogden Bros.,	300	95	37,034 54	3 212	78	*a* 764 000	Cottonades.

COTTON GOODS—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	PRODUCT. *a* Number of yards. *b* Number of pounds. *c* Number of pieces.	GOODS MANUFACTURED.
Philadelphia county—Continued.							
R. E. Patterson, executor of Robt. Patterson,	291	485	$143,830 53	18,124	640	*a*4,387,805	Ginghams and cotton dress-goods.
A. D. Irwin & Bro.,	300	46	15 331 20		97	*a*945,000	Cotton goods.
D. Wallace & Son,	304	86	27,560 56	3,442	80	*a*492,000	Jeans.
						*b*144,000	Cotton yarns.
John Watt & Sons,	300	136	50 000 00		218	*a*2 616,000	Ginghams, cottonades, and cheviots.
Callaghan & Bro.,	298	279	93.737 00	10,680	240	*a*1,319,310	Cotton cassimers.
John W. Elliott & Bro.,	283	59	13,362 74	. . .	121	*a*1,539,960	Ginghams.
Joseph Adamson & Co.,	305	200	340,543 84	. . .	160	*a*2,500 000	Elastic goods, narrow fabrics.
F. E. Weidner & Son,		14		. . .	12		Counterpanes.
James H. Kerr,	307	50	19,500 00	. . .	112	*a*1,008,000	Domestic cotton goods.
Garsed & Co.,	308	76	28,089 18	. .	126	*a*1,369,440	Ticks and ginghams.
William Wood & Co.,	298	160	55,446 00	. .	150	*a*1,801,682	Cottonades and cheviots.
William Keegan,	300	35	15.000 00	. . .	80	*a*840.000	Gingham and cotton dress-goods.
Joseph Culbert,	302	114	38,207 00	. .	240	*a*2 756,000	Cheviots. gingham.
W. J. Tate,	150	54	4,000 00	. . . .	. .	*c*40,000	Bed comforts.

Name of Operator.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	Product. a Number of yards. b Number of pounds. c Number of pieces.	Goods Manufactured.
Berks county.							
Louis Kraemer & Co.,	282	52	$20,378 42	1,008	56	.....	Jeans and doeskins.
J. G. Leinbach & Co.,	300	62	18,000 00	1,210	40	a275,000	Cotton and wool mixed goods.
Chester county.							
H. Kenworthy,	300	27	7,200 00	800	20	a120,000	Union cassimeres.
Delaware county.							
D. S. Brown, Jr., & Co.,	280	75	25,000 00	1,000	64	a350,000	Cotton and mixed cassimeres.
Robert Hall & Son,	308	43	14,500 00	660	44	a500 000	Cotton and wool jeans and doeskins.
J. Ledward & Son,	299	132	45,167 68	3 094	150	a1,200,962	Jeans, doeskins, kerseys, etc.
The Lilley & Sons' Manufacturing Company,	310	105	32,500 00	3 252	111	a1 250,000	Doeskins and jeans, also yarns.
John Maxson.	308	52	20 000 00	1,080	62	a600,000	Cottonades, jeans, and kerseys.
Shaw, Esrey & Co., (Limited,)	302	304	98 829 62	7,392	330	a2,747,971	Cotton and wool jeans and wool cassimeres.
John A. Springer,	297	36	10 800 00	720	50	a530.400	Jeans and meltons, cotton and wool mixed.
Wolfenden, Shore & Co.,	300	268	69,580 00	7,000	200	a1,040,000	Wool and cotton mixed, cassimeres and kerseys.
						b248,700	Stocking yarn.
Verlenden Brothers,	297	53	18,608 48	1,008	60	a566,675	Cotton and woolen goods.
Taylor, Wolfenden & Co.,	308	50	12 000 00	1.100	60	a20,000	Doeskins, jeans, and suitings.
A. Osborne & Sons,	310	92	27,580 00	2,275	100	a600,000	Doeskins, jeans, etc.
Montgomery county.							
James Lees & Sons,	300	730	220,000 00	12,000	304	a2,000,000	Jeans and doeskins.
						b1,600,000	Worsted and blankets.
Thomas Liversidge,	309	73	23.452 00	1.800	82	a629,437	Cassimeres and jeans.
George McFarland & Co.,	302	125	32,499 42	2,604	156	a982,231	Kentucky jeans, tweeds, etc.
Philadelphia county.							
John Bardsley & Co.,	310	170	100,000 00	2,016	110	a7,000,000	Ladies' worsted dress goods, coat linings, etc.
William Beatty,	310	62			62	c20,000	Cotton and woolen goods.
David S. Brown, Jr., & Co.,	300	175	54 000 00	2,092	143	a953.444	Cotton and woolen goods.
John G. Carruth,	310	146	47,497 58		216	a2,480,000	Cotton and woolen goods.
W. J. Dickey & Sons,	245	193	44,475 00	3,072	195	a1,761,488	Cotton and woolen goods.

COTTON AND WOOLEN GOODS—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	PRODUCT. *a* Number of yards. *b* Number of pounds. *c* Number of pieces.	GOODS MANUFACTURED.
Philadelphia county—Continued.							
H. Galashan,	300	44	$15 000 00	....	78	*a*1,041.343	Cheviots, ginghams, and flannels.
R. Granlees & Sons,	300	125	41 246 00	..	240	*a*2.100.000	Colored cotton and woolen goods.
B. W. Greer & Hetzel,	300	70	22.000 00		90	*a*950 000	Cotton and woolen goods.
Joseph Greer,	300	126	45,000 00	1.296	160	*a*1 500 000	Mixed cotton and woolen flannels, and linsays, cottonades, shirtings, and ginghams.
L. C. Haenel,	302	17	5.300 00	....	12	*c*10,200	Counterpanes and bed coverlids.
Sellers Hoffman,	290	83	21.000 00	2,190	127	*a*925 300	Jeans. flannel shirting, soft cheviots.
Irwin & Stinson,	307	152	48,211 53	.	244	*a*2.038 082	Cotton and woolen goods.
J. Leech & Bro.,	299	86	25 816 56	1,404	85	*a*551.838	Doeskins, cotton, and wool mixed.
William McIlwain,	307	59	17.304 86	....	50	*a*720 000	Cotton and woolen goods.
Samuel McPherson,	308	20	6,560 00	....	18	*a*50,000	Cotton table diaper.
						*c*28 000	Breakfast shawls.
						*c*13.000	Quilts.
Robert Mair & Son,	300	82	27,500 00	..	153	*a*1.375.000	Cotton and woolen goods.
Patton, Allison & Jones,	307	94	35 000 00	1,800	140	*a*1.375 500	Cotton and woolen goods.
F. Rumpf & Bro.,	300	60	28,290 00	..	40	*c*75.000	Coverlets and quilts.
						*c*20 000	Shawls.
John Scanlin & Son,	297	64	26,581 50	.....	120	*c*30,000	Cotton and woolen goods.
M. R. Stroud & Son,	300	229	..	....	410	*a*3 500 000	Cotton and woolen goods.
S. Thornton & Son,	308	155	55 420 61	...	258	*a*2 400,000	Cotton and woolen goods.
Joseph Welsh,	307	194	59.076 69	.	294	*c*48 587	Cotton and woolen goods.
John Willliams & Sons,	300	180	58 000 00	2 480	228	*a*3.000,000	Cheviots, ginghams, flannels, doeskins, etc.
Campbell, Elliott & Co.,	303	559	142,000 00	....	600	*a*3 500 000	Cotton goods.
						*a*1,250.000	Flannels.
James M. Preston,	300	360	117.000 00	15.100	416	*a*4 560.000	Doeskins, tricots, dress goods, etc.
Folwell Brothers & Co.,	310	234	89.500 00	2.592	206	*a*1 600,000	Serges, L. W. union coatings, dress goods, etc.
William Wood & Co.,	294	835	315,439 00	13.320	608	*a*5 332,725	Cassimeres, plaid flannel, and cottonades.
J. D. Heft & Son,	308	200	50,000 00	2,000	170	.....	Awnings, ginghams, and kerseys.

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Allegheny county.							
S. Bradley & Sons,	230	51	$17,000 00	1,080	12	20,000	Pairs blankets.
Armstrong county.							
M. B. & J. H. Fullerton,	170	28	4,300 00	704	12	a40,000	Barred and plain flannel.
						b5 000	Yarns.
William Gillis,	90	2		135	2	$215 50	Carding rolls, yarns, and blankets.
Graff & Firth,	308	40	10,000 00	400	15	b100,000	Cassimeres, blankets, flannel, yarns.
Freeport Woolen Manufacturing Company,	100	24	1 200 00	728	12	a8,200	Flannel.
						b2,000	Stocking yarns.
W. F. Rumberger & Sons,	200	30	3,590 00	960	18	160	Pairs blankets.
						a108 000	Plain and plaid flannels.
						b5,200	Yarns.
Beaver county.							
Thomas Clarkson,	300	12	2 100 00	552	8	a8 700	Flannel.
						b2 000	Yarn.
						1,800	Pairs blankets.
Bedford county.							
J. E. Noble,	300	12	5 000 00	240	7	a16 817	Flannels, carpets, and cassimeres.
						b8,051	Yarns.
S. Keagy & Bro.,	300	9	2,000 00	240	6	a20,000	Flannels, blankets, cassimeres, etc.
Berks county.							
A. J. Brumbach,	294	43	11,814 96	1,056	30	a163,400	Cassimeres.
Bradford county.							
Joseph Haigh,	155	5	700 00	160	3	a4 000	Shirting flannels.
						b500	Yarns.
Hollenback & Amsley,	188	19	3 000 00	436	10	b3 000	Wool.
						a7.115	Cassimeres, all wool flannel.
						b1,200	Cotton warp and woolen yarns.

WOOLEN GOOD.—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	PRODUCT. a Number of yards. b Number of pounds. c Number of pieces.	GOODS MANUFACTURED.
Bucks county.							
C. W. & J. Pierce,	256	132	$46,500 00	.....	....	c7,729	Felt cloths, of wool.
Cambria county.							
Wood, Morrell & Co.,	310	226	64,847 35	.....	....	a362,864	Cassimeres.
Chester county.							
Jarvis Ellis,	333	63	20,000 00	720	54	a500 000	Buckskins.
Samuel Greenwood & Son,	35	39	1,500 00	720	12	3,000	Woolen shawls.
Clinton county.							
J. T. Rich & Sons,	260	11	1,750 00	312	7	a19,200	Flannels, blankets, and yarns.
F. M. Welsh & Brother,	260	11	.....	336	8	a11,940	Cassimeres, blankets, flannels, &c.
Columbia county.							
Shadrach Eves,	90	7	200 00	360	5	a500	Flannel.
						b2,000	Yarn.
						30	Pairs blankets.
C. L. Sands,	156	5	328 00	200	4	a1 050	Flannels and blankets.
						b5,000	Yarns.
Crawford county.							
H. Lamb,	200	4	700 00	200	3	a4,700	Flannels and cassimeres.
						b1,500	Yarn.
Delaware county.							
Samuel Bancroft,	293	106	38,625 72	3,150	35	a94,019	Beaver cloths, 32 oz. per yard.
G. P. Denis,	300	143	36,800 00	2,280	34	a264,000	All-wool cassimeres.
James Irving & Son,	300	101	31 140 45	2,096	106	a594,746	Jeans, tweeds, doeskins, cotton warp.
Erie county.							
William Thornton,	120	10	500 00	200	3	a5,000	Fulled cloths, flannels, and yarns.
Thomas Thornton,	235	8	1,500 00	240	3	a8,000	Cassimeres and flannels.
						b5,000	Yarn.

Franklin county.							
Chambersburg Woolen Company,	286	80	34,234 60	1,728	22	*a*72 542	All wool overcoatings.
J. B. White,	280	11	2,875 00	210	7	*a*6,000	Carpets, satinets, jeans, cassimeres, &c.
Fulton county.							
Benjamin Fisher,	200	7	500 00	192	4	*a*1,200	Flannels, satinets, blankets, &c.
						*b*6,000	Wool carding and yarns, (custom work.)
Benjamin Greenland & Son,	150	3		160	1	*a*600	Woolen goods.
						*b*40,000	Yarn and rolls.
Huntingdon county.							
Ed. Keatley & Bro.,	256	11		234	5	*b*6 000	Blankets, cassimeres, tweeds, flannels, &c.
Indiana county.							
Frank S. Chambers,	225	13	2,000 00	240	5	*b*25,000	Blankets, flannels, jeans, satinets, &c.
Fiscus & Cook,	208	5		130	2	*a*1,000	Flannels, cloth, carpets, &c.
						*b*3,000	Yarn.
Lackawanna county.							
Jasper Shoemaker,	250	9		240	2	*a*12,000	Flannels, tweeds, and stocking yarn.
Lycoming county.							
W. & C. Stadon,	250	26		1,000	8	*b*35,000	Cassimeres, flannels, yarns, &c.
Youngman, Caswell & Co.,	300	40	12,000 00	1,224	12	*a*18,000	Cassimeres.
Mifflin county.							
J. Wilson & Co.,	208	11	2,000 00	630	6	*a*16,000	Cassimeres, satinets, flannels, &c.
Monroe county.							
Wallace & Kltson,	300	85	22,000 00	1 266	21	*a*115,800	Woolen cassimeres.
Montgomery county.							
George Bullock & Co.,	305	287	105,000 00	5,280	78	*a*325,000	6-4 goods, (woolen suitings.)
George Bullock & Co.,	455	90	29,250 00	980	25	*a*115,000	Woolen suitings, (6-4 goods.)
Philadelphia county.							
William F. Reed,	310	76	20 000 00		104	*Grs.*353,600	Alpacas and worsted goods.
John Sullivan & Sons,	300	142	30,000 90		136		Tapes and bindings.
E. P. & H. N. Almy,	300	106	50,000 00	1,320	40	*a*350,000	Cloakings, ladies' dress goods, &c.
M. A. Furbush & Son,	300	275	125,000 00		243	*a*384,943	Woolen cassimeres and cloakings.
H. & D. Henry,	308	250	65,000 00	2,000	135	*a*2,000,000	Flannels.
August Lessig,	295	16	4,867 50		12	*c*15 000	Bed coverlets.
Scheppers Brothers,	265	541	150,000 00	3,700	316	*a*1,428,000	Worsted dress goods and men's wear.
J. B. Seybert,	220	120	40,000 00		41	*a*25,000	Dress goods and cloakings.
						*c*25 000	Shawls.
Thomas H. Wilson,	305	92	34,259 66		52	*a*200,000	Piece goods.
						*c*175 000	Shawls.
Richard Hey,	300	77	24,000 00	840	18	*b*900,000	Blankets and yarns.
James Stafford,	300	88	22 405 09	700	18	*b*200,000	Blankets and carpet yarn.
S. B. & M. Fleisher,	303	224	55, 285 39			*a*14,283,060	Braid.
						*b*316,407	Worsted yarn.
Sevill Schofield,	306	1,333	350 000 00	13,500	350	*a*1,234,000	Blankets, overcoatings, cassimeres.

WOOLEN GOODS—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	PRODUCT. a Number of yards. b Number of pounds. c Number of pieces.	GOODS MANUFACTURED.
Sullivan county.							
John H. Osler & Son,	275	5	.....	240	2	*a* 2,000 *b* 1,000	Cloths and flannels. Yarns.
Tioga county.							
J. S. Ingham,	....	6	.....	220	4	.....	Farmers' and lumbermen's cloths and flannels, (custom work.)
Union county.							
M. Halfpenny & Co.,	280	51	$15,579 00	1,824	18	*c* 75,668	6-4 fancy cassimeres.

YARNS.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Sets of cards.	PRODUCT. Pounds of yarn.	GOODS MANUFACTURED.
Allegheny county.							
Thomas Hyde & Co.,	250	80	$13,306 80	2,016		175,000	Carpet chain, batting, twine, &c.
Armstrong county.							
Isabella Cooper,	100	4		90	2	2,000	Wool carding, (custom work.)
Isaac Kinnard & Son,	60	3	30 00	160		3.205	Wool carding and spinning, (custom work.)
Bucks county.							
Grundy Bros. & Campion,	306	265	80,000 00	3,400		625,000	Worsted yarns.
Jacob Barlow, (lessee,)	155	28	3.985 00	2 040		103.556	Cotton warps.
Joshua Whiteley,	273	44	8,710 75	4,000		218,575	Cotton yarn.
Chester county.							
James Lund,	130	95	11,500 00	2,016		52,452	Worsted yarns.
Delaware county.							
Stephenson & Co.,	285	32	4.800 00	1,400		104 000	Cotton warps.
W. H. H. Robinson,	280	56	15,000 00	5.000		385 000	Warps and skein yarn, (cotton.)
William Arrot & Co.,	303	83	23.000 00	4.900		52 000	Cotton and woolen yarn.
William A. Griswold & Co.,	304	250	65,000 00	7,300		380.000	Worsted yarns.
S. Haigh & Co.,		61		3.020		300.000	Woolen and mixed yarn.
James Barton,	304	39	11,286 00	4,596		258 400	Cotton yarns.
J. & T. Byrne,	300	16	4,400 00	1.284		112 500	Woolen yarn.
Simeon Cotton,	308	39	10,920 00	3,060		309.953	Cotton warps.
A. N. Hatch,	130	1				2,500	Cotton laps.
The Irving and Leiper Manufacturing Co.,	312	114	35,494 72	11,704		1,129.210	Warpsand hosiery yarn.
Daniel Sharkey & Co.,	308	14	6 000 00	2,640		200,000	Cotton yarn.
W. P. Shimer,	155	1			3	10,000	Cotton laps.
James M. Stotesbury,	308	38	12,000 00	3 332		360 0 0	Cotton warp yarn, 14s to 18s.
W. & R. Turner,	353	4			4	25 373	Cotton laps.
Cockcroft & Black,	302	41	10, 497 00	1,224		100,000	Fine worsted yarn.

YARNS—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Sets of cards.	PRODUCT. Pounds of yarn.	GOODS MANUFACTURED.
Lancaster county.							
Peters & Shirk,	309	68	$17,220 00	5,352		45,000	Yarn.
Montgomery county.							
Booth & Brother,	308	37	13,000 00	1,000		999,000	Carpet yarn.
Robert Chadwick,	308	14	3,873 00	500		105,080	Lampwick and coverlet yarn.
Seth Humphreys,	300	40	14,337 00	720		748,800	Carpet yarn.
J. & J. Hunter,	300	125	31,583 85	15,300		647,100	Cotton yarn.
Charles A. Maxwell & Co.,	26	42	875 00	3,564		25,000	Warp yarn.
Allen Ridgway, Agent,	308	14	5,200 00	840		100,000	Stocking yarn. (Work on commission.)
Schofield, Mason & Co.,	300	80	27,658 50	3,100		500,000	Woolen and worsted carpet yarn.
Philadelphia county.							
Joseph M. Adams,		10		324		416,000	Woolen carpet yarns.
Job Batty,	303	39	12,580 00	880	6	600,000	Woolen carpet yarns.
Robert Beatty,	300	58	22 500 00	6,480		700 000	Hosiery yarns.
Beswick & Kay,	300	88	22,000 00	4,000		400,000	Yarn.
Byrom Brierly,	288	20	6,480 00	954		100,000	Woolen yarn for jackets and hosiery.
J. Howard Bromley,	300	20		975		100 000	Woolen, merino, and cotton yarn.
Callaghan & Brother,	188	84	11,762 56	6,120		168 080	Cotton yarn.
George Campbell,	308	450	110,000 00	7,240		700 000	Worsted yarns of all descriptions.
D. Crowther & Son,	300	31	8 000 00	2,200		90.000	Woolen yarn.
J. Dalton & Brother,	308	28	10,815 31	1 300		150 000	Woolen yarn.
William Emsley & Brother,	300	70	30,000 00	2,500		300 000	Woolen yarn.
Fiss, Banes, Erben & Co.,	305	351	106,772 83	8,348		211,002	Woolen yarn.
						568,000	Worsted yarn.
A. Flanagan & Brother,	307	16	6,573 00	450		520.000	Carpet yarn.
Joseph Fling & Sons,	300	25	10,500 00	1,764	4	200,000	Cotton, merino, and woolen yarn.
M. . Furbush & Son,	300	80		4,500		500 000	Woolen yarn.
Garsed & Co.,	300	278	60,860 00	15,502		1,549,945	Cotton yarn, 8s to 28s.
John Gibson,	282	16	7,300 00	1,200	2	100,000	Cotton and woolen yarns.
John Greave. & Brother,		28		1,600	3	200,000	Cotton and woolen yarn.

David Hey,	303	39	15,560 00	720		764,000	Coarse gray shoddy carpet and blanket yarn.
						125 000	Stuffing shoddy.
William F. Hill,	280	35	7 200 00	2 500		200.000	Cotton yarn.
Joseph W. Hilton,	295	21	7.183 25	1,310		150 000	Woolen, merino, and cotton yarn.
William Hodson,	306	22	7 071 63	1 470		129,409	Cotton, woolen, and shoddy yarn.
O. F. Holt,	306	30	10 400 00	2 000		234,000	Woolen spun yarn.
Jaggers & Jones,	300	33	10.036 98	2,520		131 155	Cotton and woolen yarn.
James & Davenport,	300	17	7,500 00	900		275 000	Cotton, woolen, and carpet yarns.
Daniel L. Jones & Co.,	282	38	9,440 00	2 440		312 473	Woolen yarn.
Kelly & Wilbere,	300	57	19 200 00	1,800	3	234,000	Cotton and woolen yarn.
T. Kenworthy & Co.,	308	48	20,800 00	1,200		1 224 162	Carpet yarn.
R. Kershaw,	296	101	25,000 00	2.592		220.000	Worsted yarns.
John Lee,	308	19	10 000 00	1.100	3	390 000	Carpet yarns.
Robert A. Lees,	225	4	1,200 00			40,000	Shoddy.
Fleetwood Lodge,	308	16	5 500 00	540		261,000	Carpet yarn.
John F. Lodge,		39	15,500 00	1,400		750 000	Carpet yarn.
Joshua Madeley,	300	18	6 500 00	3 200		220 000	Cotton hosiery yarns.
James Meadowcroft & Sons,	307	25	16 900 00	12,000	4	120 000	Cotton carpet yarn.
Midnight Yarn Company,	308	68	20.300 00	2,356		300 000	Germantown wool and knitting yarn.
Robert Mortimer & Son,	301	20	7,020 00	1,592		146 729	Woolen and merino yarn.
A. Platt & Brother,	300	85	30 000 00	5.700		610 000	Yarns.
Robert Platt,	308	32	9.550 00	1,600		223 000	Cotton hosiery yarns.
David Radcliff,	275	5	1.240 00		3	10 000	Cotton laps.
J. Randall & Brothers,	287	33	10 305 41	2 092		219,248	Cotton, merino, and woolen yarns.
Randolph & Jenks,	302	81	22 050 20	5,952		344,958	Cotton yarns
Rice & Bean,	300	31	11 422 00	2,500		260,000	Woolen and cotton yarn.
D. & W. Ring,	288	45	19 710 00	2,798		321 872	Woolen yarn.
Jonathan Ring & Son,	300	50	23,000 00	2,964	4	325,000	Woolen yarn.
Seatchard & Hoffman,	300	23	7,386 00	2 004	4	200 000	Woolen spun yarn.
William Scholes & Son,	300	31	11 198 00	1.762		268 000	D. R. carpet yarns, Smyrna rugs, &c.
Shaffner & Stringfellow,	242	27	7.304 00	936		85.351	Knitting cotton and Germantown yarn.
Charles Shaw,	290	16	5,500 00	1,100	2	120,000	Cotton, wool, and merino yarn.
Taylor Spink,	300	5	2 000 00			240 000	Woolen shoddy.
Stafford & Co.,		60	18.000 00	660		600 000	Carpet and blanket yarns, and blankets.
Stead Brothers,	305	36	13 844 00	4,472		416,000	Cotton and wool hosiery yarns.
Taylor Brothers,	308	4	1 800 00			308 000	Shoddy.
Taylor, Brother & Co.,	300	34	12 324 00	2,926		364 600	Cotton yarns and wool-spun cotton.
William Thornton,	301	23	11 550 00	350		282,040	Carpet yarn.
John Topham,	300	19	6,835 41	1.710		125 778	Woolen yarn.
The Tracy Worsted Mills Co., (Limited,)	296	411	122 680 16	9,690		623,107	Worsted yarn.
James Whitaker & Brother,	309	23	10.508 00	560		500 000	Carpet yarns.
James Whitehead,	300	18	26,400 00	800		425.000	Cotton carpet yarn.
John Wilcox & Brother,		14	3 957 00	432		240.000	Carpet yarn.
Robert Wilde & Son,	300	37	13,650 00	700	12	640.000	Carpet yarns.
Wolfenden Shore & Co.,	300	11	4.380 00			240,000	Wool extracted from cloth-cuttings.
Samuel Wood,	298	21	7,971 50	1 080	2	150,000	Woolen, cotton, and merino yarn.
James Wright,	312	31	10,400 00	650	4	624.000	Carpet yarns.
Mrs. Sarah Yewdall,	306	74	25,146 12	1,872		183 600	Worsted yarns.
J. J. McConnell & Co.,	308	26				300,000	Yarn.
Joseph Pollitt,	310	32	12 000 00	3 600		360,000	Hosiery yarn.
William Johnson,	306	35	13,115 16	875		612,000	Carpet yarns.

HOSIERY AND KNIT GOODS.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	Product.	GOODS MANUFACTURED.
Allegheny county							
Allegheny County Work-House,	270	*37	. . .	. . . .	. . . .	4,079	Dozen socks. (*Female prisoners.)
Bucks county.							
Lewis Jones,	260	337	$60,000 00	1,620	425	225,000	Dozen cotton, wool, and merino hosiery.
Delaware county.							
Clarence Larkin,	298	89	21,533 84	. . . .	. . . .	105,836	Dozen hosiery.
Luzerne county.							
Ellithorp & Co., (Limited,)	300	117	33,116 05	960	. . . .	14,349	Dozen knitted shirts and drawers, (gents and ladies.)
Philadelphia county.							
Adams & Langfeld,	300	291	50,000 00	. . . .	. . . .	200,000	Dozen plain, fancy, and full regular made hosiery.
J. & B. Allen,	300	196	75,000 00	950	45	125,000	Dozen hosiery and fancy woolens.
John Ballantyne,	. . . .	54	12,000 00	. . . .	. . . .	155,000	Pounds cotton hosiery.
James Bannister,	. . . .	47	24,000 00	. . . .	. . . .	75,000	Dozen cotton and woolen hosiery.
H. Becker & Co.,	300	162	52,188 11	2,152	. . . .	134,039	Dozen cardigan jackets, guernsey frocks and hosiery.
Bennett & Branson,	. . . .	27	7,500 00	. . .	. . .	35,000	Dozen hosiery.
E. Birchall's Sons,	230	14	3,836 40	. . . .	9	18,000	Dozen fancy knit goods.
John R. Bill & Bros.,	234	16	6,250 00	. . .	. . . .	25,000	Dozen ladies and gents fancy cotton hose.
Robert Bishop,	275	32	10,324 63	. . . .	. . . .	30,450	Dozen hosiery.
Fred. Blickle,	. . . .	2	. . . .	. . . .	. . . .	80	Dozen jackets.
						400	Dozen stockings.
Enoch Blood & Son,	290	39	20,000 00	. . . .	. . . .	20,000	Dozen stockings.
John Blood & Bro.,	300	155	28,724 50	. . .	. . . .	120,000	Dozen hosiery.
John Blood & Co.,	301	206	63,812 00	. . . .	. . . .	. . . .	Hosiery.
William Bonsor,	308	2	500 00	. . .	. . . .	$1,500	Knit gloves, (woolen.)
Joseph Boulter & Son,	300	263	40,000 00	. . . .	. . . .	180,000	Dozen Hose.
M. J. Brown & Bro.,	154	25	1,525 00	. . .	16	10,000	Dozen cotton hosiery.
Conyers Button & Co.,	300	491	140,000 00	1,800	12	400,000	Pounds wool and cotton, hosiery, and fancy knit goods.
Thomas H. Campion,	300	62	16,000 00	. . . .	. . . .	80,000	Dozen hosiery.
Robert L. Cartledge,	. . . .	12	. . . .	. . . .	. . . .	. . . .	Hosiery. Burned out November 4, 1881.
Clark & Beatty,	300	70	30,000 00	. . .	. . . .	100,000	Dozen hosiery.
Alfred Collard,	225	54	7,850 00	. . .	. . .	5,965	Dozen gloves and mitts.
Thomas B. Cope & Bro.,	. . . .	205	50,000 00	. . .	. . .	200,000	Dozen hose.
Lewis S. Cox & Co.,	200	185	47,000 00	. . . .	. . . .	55,000	Dozen hose.
Robert Cupit & Sons,	290	30	4,500 00	. . . .	. . . .	2,000	Pounds hosiery.

Flavell Bros.,	208	74	24,336 00			52,000	Dozen fancy hose, ladies' and children's.
George Fling,	300	41	7,500 00			45,000	Dozen hosiery.
Edward Gamble,	308	120	30,000 00				Hosiery.
John J. Glazier Bro. & Co.,	310	485	115,000 00			500,000	Dozen hosiery.
C. & J. Gould,	296	24	8,450 00			80,000	Dozen children's fancy hose.
Greaves & Thurman,		21				2,500	Dozen cardigan jackets and ringwood gloves.
Green Bros.,	130	24	1,080 00	18		7,000	Dozen misses and gents hosiery.
Gunn, Johnson & Co.,		175	28,000 00			150,000	Pounds hosiery.
J. Halford & Sons,	290	18	3,000 00			2,200	Dozen hosiery.
G. Halstead,	270	8	1,675 50			300	Dozen knit jackets.
Charles Hellmer,	288	2	518 40			400	Dozen woolen and cotton stockings.
William Henderson,	308	10	3,036 00			27,600	Dozen hosiery.
B. J. Hickman,	308	104	20,000 00			50,000	Dozen hose, (ladies fancy.)
William Hill & Co.,		16	5,467 29		6		Fancy woolens.
James Hogg,	275	92	27,000 00			70,000	Dozen hosiery.
Reuben Holmes,					2	300	Dozen ringwood gloves.
Aaron Jones' Sons,	300	182	75,000 00		22	150,000	Pounds hosiery and fancy knit goods.
David Jarvis,	250	32	5,000 00		10		Knit goods.
Kaye & Byron,	300	26	10,724 14		20	45,000	Shawls and fancy knit goods.
Thomas C. Love,	300	104	18,000 00				Misses' and ladies' fancy hose.
McCaffrey & Ryan,		138				150,000	Dozen ladies, gents, and misses hosiery.
MacCarroll Bros.,	283	90	25,000 00			75,000	Dozen hosiery.
Joseph D. McKee,	300	281	60,000 00		44	40,000	Dozen fancy knit woolens and shawls.
James McMann,	308	9	3,250 06		9	8,000	Pounds hosiery.
Samuel Manship,	205	6				3,000	Dozen woolen hosiery.
George Marshall,	244	10				2,000	Yards fancy knit goods.
William Martin,	308	73	7,000 00			123,200	Dozen stockings and fancy hosiery.
Henry Middleton,	287	15		32			Hosiery.
E. Millhouse,	300	10	2,500 00			25,000	Dozen cotton and wool hosiery.
Thomas Mottram,	200	41			10	1,800	Dozen cardigan jackets.
Thomas J. Mustin & Co.,		175				$40,000	Hand knit goods, operators work at own homes.
Edward Noon & Son,	308	28				28,000	Dozen hosiery.
John Noone,		8	1,500 00			$5,000	Children's regular made socks.
Alfred Oliver,		67	18,000 00			50,000	Dozen stockings.
James D. Orne & Co.,						$14,000	Hand knit goods.
Owen Osborne,	240	37	12,528 00			25,600	Dozen misses' and ladies' fancy hose.
John Patterson,	302	56	25,821 00			50,000	Dozen plain and fancy cotton hosiery.
Pearce & Landenberger,	240	271	75,269 43			271,446	Dozen misses', ladies', and men's hosiery.
George Peberdy,	308	68	15,000 00				Knit jackets and hosiery.
Boaz Phillips,	260	36	6,000 00			6,000	Dozen mens' and boys' gloves, mitts, and cuff jackets.
Pilling & Madeley,	292	616				500,000	Dozen cotton hose and half hose.
H. Posern,	308					500	Knit jackets.
Powell & Bro.,	300	375	35,000 00				Hosiery.
James Preston,	205	18	3,839 05			900	Dozen hand knit cardigan jackets and gloves.
Schofield & Branson,	300	452	100,000 00			550,000	Dozen cotton and woolen hosiery.
Michael Schwalb,	182	0	700 00			900	Dozen fancy hosiery.
Thomas Sherman,	308	45	13,000 00	48	4	40,000	Pounds cotton used in making ladies', children's, and men's mitts, jackets, and cuffs.
William Shingle,						450	Dozen gloves.
Charles Spencer & Co.,		550		4,000	41	163,000	Yards worsted and woolen cloth.
						150,000	Dozen hosiery.
						30,000	Dozen knitted goods.
Isaac Springthorpe,	300	49	7,500 00			6,000	Dozen hoods, shawls, nublas, etc.

HOSIERY AND KNIT GOODS—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	Product.	GOODS MANUFACTURED.
Philadelphia county—Continued.							
William Sullivan & Co.,	308	84	$26,000 00	. . . .	. . .	90,000	Dozen ladies', gents', and misses' hosiery.
Joseph Thurman, Jr., & Son,	300	21	8,000 00	. . . .	. . .	. . . . .	Hosiery and knit goods.
Techner & Frank,	200	800	50,000 00	. . . .	. . . .	30,000	Pounds yarn consumed. Hand-made knit goods and lace caps.
E. Townsend,	240	14	3,000 00	. . .	4	32,000	Pounds cardigan jackets.
William Vernon & Co.,	300	215	55,178 65	. . . .	. . . .	240,000	Dozen men's half-hose, ladies' hose, and misses' and boys' hose in cotton, merino, and wool.
Vickers & Weston,	310	265	59,546 99	. . . .	. . . .	203,466	Dozen hosiery.
George A. Wallace,	300	56	10,400 00	. . .	. . . .	41,600	Dozen plain and fancy hosiery.
Ambrose West,	300	64	25,000 00	. . . .	. . . .	50,000 6,000	Pounds cotton, } Cardigan jackets, gloves and hosiery. Pounds wool, }
Samuel West,	150	34	5,100 00	. . . .	. . . .	. . . . .	Hosiery.
Samuel Whittle,	300	105	25,000 00	. . . .	. . . .	120,000	Dozen hosiery.
John Why,	275	16	5,250 00	. . . .	12	15,000	Pounds cardigan jackets, mitts, and hosiery.
Wilcox & Armstrong,	304	59	5,655 67	. . . .	. . .	. . .	Hosiery.
Wilson & Co.,	200	115	20,000 00	. . . .	. . . .	80,000	Dozen ladies' and misses' cotton, merino, and woolen hosiery.
Willliam Wrightson,	301	46	15,498 04	. . . .	. . . .	67,348	Dozen ladies' and mens' fancy hose.
Bristow Bros.,	250	58	17,000 00	. . . .	. . . .	10,000	Dozen cardigan jackets, gloves, mitts, &c.
F. W. & T. S. Henson,	300	104	25,000 00	408	. . . .	$165,000	Fancy knit woolens.
John E. Hanifen & Co.,	256	608	78,385 00	. . . .	. . . .	275,000	Dozen fancy cotton and woolen hosiery.

SILK AND SILK MIXED GOODS.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	PRODUCT. *a* Number of yards. *b* Number of pieces. *c* Number of pounds.	GOODS MANUFACTURED.
Lackawanna county.							
Sauquoit Silk Manuf'g Company, (branch,)	296	174	$25,696 00	6,500		*c*48,409	Tram and organzine.
Lehigh county.							
Phœnix Manuf'g Co. of Paterson, N. J.,	87	370		18,908		*c*100,000	Tram and organzine.
Philadelphia county.							
Aub, Hackenburg & Co.,	300	75	18 810 22	3 200		*c*18 525	Machine and sewing silks.
Noah Barlow,	303	22	7.000 00		14	*a*50 000	Upholstery goods.
George Brooks & Son,	305	75	30 000 00		41	*a*156,000	Upholstery goods.
William Coleman,	308	19			3		Fringes, cords, and tassels, &c.
W. B. Cunningham,		19	4 250 00		10		Fringes, gimps, and tassels. Make goods to order only.
John Davenport	308	44	15 370 00		26	*b*982	Upholstery goods.
Fair Hill Manufacturing Company,	308	136	35,000 00	96	19	*c*49,000	Cotton silk, and worsted yarn, used in making upholstery, dress, and shade trimmings.
G. W. Flavell & Bro.,	308	9	4.200 00		8	700	dozen surgical elastic hosiery.
H. T. Freyer,		5	2.000 00		5		Silk and worsted tassels, fringes, buttons, cord, &c.
E. H. Godshalk,	308	909	104.483 13	3,624	125	*a*1 256 190	Dress and upholstery trimmings, &c.
J. C. Graham,	306	258	70 891 10		51	*a*1,080 000	Dress, undertakers, and furniture fringes, trimmings, &c.
W. H. Horstmann & Sons,	308	353	100.000 00		172	$400 000	Narrow fabrics and military accouterments.
Werner Itschner & Co.,	280	202	76.000 00		90	*a*1,270,000	Silk ribbons.
George E. Jenkins,	308	33	6 000 00		19		Fine curtain and furniture trimmings.
Kaufman, Strouse & Co.,	260	325	75,000 00	420	45	$275 000 $75 000	Fringes and dress trimmings. Hat bands, ribbons, and woven goods.
Kemper & McAuliffe,	190	18	2 677 80		10	*b*1,935	Silk fringe.
M. W. Lipper & Co.,	300	179	73 000 00	375	80	*b*30,000	Ladies' dress trimmings, fringes, &c.
F. W. Maurer & Son,	308	60	17,200 00	96	24		Upholstery trimmings.
D. & J. Noblit,	300	68	30.000 00		120	*a*130 000	Hair seating for furniture.
F. Perry,	308	4	2 500 00		3	*b*250	dozen elastic bandages, knee caps, &c.
Edward Ridgway,	305	20	6,500 00		12	*a*45 000	Upholstery cloths for covering furniture, and curtains.
Charles Rose,	250	4	950 00			*a*35,000	Silk cord.

SILK AND SILK-MIXED GOODS—Continued.

NAME OF OPERATOR.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Spindles.	Looms.	PRODUCT. a Number of yards. b Number of pieces. c Number of pounds.	GOODS MANUFACTURED.
Philadelphia county—Continued.							
Sauquoit Silk Manufacturing Company,	306	300	$80,000 00	5,000	103	*a*150.000	Silk yarns and plain silk fabrics.
Stead & Miller,	300	104	45,000 00		62	*a*130,000	Upholstery goods.
C. Wallisor,	308	10	2,000 00		7		Ladies' dress-trimmings.
James Wilson,	308	121	17 000 00		52	80,000	gross tapes and bindings.
Woelpper & Brother,	308	53	16,400 00	84	12	$35,000 00	Upholstery trimmings.
H. Davenport,	300	207	75,000 00		185	*c*6.000	Upholstery goods.
August Wallisor,	154	3	500 00		3	$175,000 00	Ladies' dress-trimmings.
Wayne county.							
Dexter, Lambert & Co.,		370		20,000	128		Piece silk and spinning silk for weaving ribbons and broad silk. Just commenced operations.

BLEACHING, DYING, FINISHING, AND PRINT WORKS.

Name of Operators.	Number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Product.	Class of Goods, Bleached, Dyed, Finished and Printed.
Philadelphia county.					
Thomas Beardwood & Bro.,	308	60	$20,000 00	. . . . .	Finished cotton and woolen goods of every description.
Jacob Berges & Co.,	280	40	22,500 00	$70,000 00	Woolen yarns dyed.
George Crawford,	309	10	6,938 00	1,095,000 lbs.	Carpet yarns dyed.
Diller & Seal,	308	16	17,000 00	. .	Yarns dyed.
Joseph Greenwood & Son,	278	22	12,510 46	1,277,500 lbs.	Carpet yarn dyed.
R. Greenwood & Bault,	307	120	64,451 61	. . .	Raw cotton, cotton yarns, and cotton warps dyed and bleached.
Andreas, Hartel & Co.,	223	130	40,997 47	10,035,000 yds.	Calico prints.
David Harvey & Co.,	305	11	3,700 00	. . . .	Cotton goods finished.
Horrocks & Bro.,	300	62	24,000 00	800 tons.	Yarn dyed and bleached.
				6,500,000 yds.	Cotton goods dyed and finished.
Charles Kltchenman,	308	14	9,048 00	. . . . .	Woolens dyed.
G. J. Littlewood & Co.,	308	50	20,000 00	. . . . .	Cotton, yarn, and wool dyed.
James Martin & Co.,	300	181	86,490 55	$500,000 00	Cotton goods printed and dyed.
William Mills & Son,	300	48	23,000 00	1,248,000 lbs.	Cotton and woolen yarn dyed.
Wilson Brothers,	300	55	21,000 00	$65,000 00	Cotton goods dyed and printed.

WOOL HATS.

NAME OF OPERATOR.	No. of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Product—dozens.
Berks county.				
Hendel Bros. & Sons,	296	153	$42,000 00	51,000
George Hendel & Co.,	275	91	11,622 58	19,656
C. F. Kessler & Bro.,	250	28	4,559 24	6,400
I. W. Levan & Son,	274	70	29,000 00	20,000
D. F. Lotz & Co.,	305	36	14,509 00	9,600
John R. Miller & Co.,	285	72	23,000 00	22,800
Jeremiah G. Mohn & Bros.,	200	89	13,000 00	18,000
W. H. Reinœhl & Co.,	260	67	14,400 00	14,351
J. K. Ruth,	200	26	4,350 00	800
J. Stieff & Bro.,	225	26	6,500 00	6,000
Lancaster county.				
J. Lutz & Son,	100	28	3,600 00	$4,000 00
Philadelphia county.				
John B. Stetson & Co., (fine fur, soft, and stiff felt hats,)	310	702	$340,378 29	28,529

RECAPITULATION.

Number of establishments to whom blanks were sent,		795
Number in operation tabulated,	532	
Number not in operation,	73	
Number not responding,	190	
	795	
Number of persons employed, as tabulated,		54,016
Average number of days worked during the year,		284
Total amount of wages paid during the year,		$15,487,239 68

Spindles,	810,278
Looms,	27,843
Sets of cards,	195
Pickers,	13
Frames, spinning, spooling, winding, etc.,	231
Warp-mills,	29
Willows,	5
Feeding and lapping machines,	12
Reels,	14
Mules,	6
Balling machines,	5
Hosiery machines,	637
Round heads,	2,567
Balmoral heads,	347
Rib frames,	178
Heelers,	90
Seaming and sewing machines,	546
Loopers,	70
Hand frames,	40
Knitting machines,	453

Knitting machines, sets,	20
Full fashioned frames,	11
Covering machines,	17
Cord machines,	129
Silk throwing machines,	37
Chenille machines,	11
Braid machines,	302
Presses,	36
Other frames and machines,	126

PRODUCT.

Carpets, yards,		18,788,536
Carpets, pieces,		7,603
Carpets, (not otherwise classified,)		$277,913 61
Cotton goods, yard,		114,157,017
Cotton goods, pieces,		45,280
Cotton goods, (quilts,)		160,000
Cotton goods, (Turkish towels,) dozen,		12,000
Cotton and woolen goods,		63,377,396
Cotton and woolen goods, pieces,		98,587
Cotton and woolen goods, (coverlets and quilts,)		98,200
Cotton and woolen goods, (shawls,)		48,000
Woolen goods, yards,		23,069,069
Woolen goods, pieces,		7,729
Woolen goods, (worsted, blankets, flannel, cassimeres, tweeds, etc.,) pounds,		3,169,607
Woolen goods, (shawls,)		203,000
Woolen goods, (coverlets,)		15,000
Woolen goods, (blankets,) pair,		21,990
Woolen goods, (tapes and bindings,) gross,		353,600
Yarns, carpet, pounds,	13,807,809	
Yarns, carpet chain, batting, and wick, pounds,	2,994,526	
Yarns, cotton, warps, and cops, pounds,	7,254,673	
Yarns, cotton laps, pounds,	47,873	
Yarns, cotton and waste, pounds,	5,326,141	
Yarns, woolen, pounds,	3,348,625	
Yarns, worsted, pounds,	3,452,219	
Yarns, hosiery, pounds,	3,496,910	
Yarns, cotton, silk, and worsted, pounds,	49,000	
Yarns, shoddy, pounds,	953,000	
Yarns, wool carding, spinning yarn, etc., pounds,	69,456	
		40,800,232
Wool, pounds,		3,000
Wool carding and rolls, (not otherwise classified,)		$215 50
Hosiery and knit goods, yards,		2,000
Hosiery and knit goods, pounds,		968,000
Hosiery and knit goods, dozen,		5,815,208
Hosiery and knit goods, (jackets,)		500
Hosiery and knit goods, (shawls, etc.,)		45,000
Hosiery and knit goods, (not otherwise classified,)		$225,500 00
Used in making jackets, gloves, mitts, hosiery, etc., cotton, pounds,	120,000	
Used in making jackets, gloves, mitts, hosiery, etc., wool, pounds,	6,000	
		126,000
Silk and silk mixed goods, yards,		4,302,190

Silk and silk mixed goods, pieces,	39,853
Silk and silk mixed goods, pounds,	148,409
Silk and silk mixed goods, (elastic hosiery,) dozen,	950
Silk and silk mixed goods, (machine and sewing silk,) pounds,	18,525
Silk and silk mixed goods, (tapes and bindings,) gross,	80,000
Silk and silk mixed goods, (not otherwise classified,)	$786,750 00

BLEACHING, DYEING, FINISHING, AND PRINTING.

Cotton goods, dyed and printed, yards,	6,500,000
Cotton goods, printed, yards,	10,035,000
Yarns, bleached and dyed, tons,	800
Yarns, dyed, pounds,	3,620,500
Cotton goods, dyed and printed, (not otherwise classified,)	$565,000 00
Yarns, dyed, (not otherwise classified,)	$70,000 00

Hats, (fine fur, soft, and stiff felt,) dozen,	28,529
Hats, (wool,) dozen,	168,607
Hats, (wool,) not otherwise classified,	$4,000 00

FACTORY REGULATIONS.

Laws enacted in all countries for the regulation of the hours of labor in factories, together with the minimum age of persons employed therein, have been super-indueed by the introduction of invented machinery, which prompted the association of accumulated capital, for the purpose of erecting large establishments, requiring the employment of labor in great numbers.

When the spinning-wheel was one of the neeessary adjunets of a household, giving profitable occupation to the women and ehildren, while the male portion were engaged at out-door labor; there existed no neeessity for law to exereise a power in regulating time, age, or eondition; but when the spinning jenny was invented, supplemented by the spinning frame and mule jenny, the inevitable tendency was to an aggregation of labor in faetories, and the gradual extinction of that elass of labor in the eottage or dwelling. The inventions of Hargreaves, Arkwright, and Crompton, crowded into a period of twenty years, gave incentive to eompetition, whieh banished the old methods, and virtually wiped out a household industry that had long been a source of subsistence throughout the manufaeturing districts of England. Weaving, however, still remained as a profitable employment, for the rapid spinning of yarns, by improved methods, stimulated trade and created inereased demands, thus prompting a great additional number of people to engage in the work, and eonverting almost every outhouse into a loomshop, where men were enabled to earn profitable wages. But the mareh of invention was onward, and gradually the hand-loom gave way to the power loom, whieh supplemented domestic by eollective industry. The man who had leisurely worked at his hand-loom, with no superior to dictate when he should begin, or when he should eease; the wife, who, at her own fireside, plied her busy task over the wheel, were soon foreed, by necessity, to join hundreds of others of like character and pursuits, within the walls of a mill, where time to work, time to quit, and time to eat, were regulated by the inexorable sound of a bell. The first mills ereeted were driven by horse-power, afterwards supplanted by water-power, which neeessitated a ehange of loeation to the vieinity of rivers and streams, of suffieient volume, to furnish the power required. Thither the eottage weaver and spinner were unwilling to go, and, as a eonsequenee, some difficulty was eneountered in seeuring hands; but the genius that invented maehines soon discovered that the strong man or adult were not indispensably necessary; as the maehines required feeding only, it was evident that the young and comparatively feeble were eapable for the task, and then it was that children were sought and employed. Thousands were gathered from poor-houses and among the lowly in large eities and earried to the

mill towns, where they were indentured to lead a life of abject slavery, under the supervision of the overseers set over them. No sanitary regulations were enacted, no physical comforts afforded, nothing seemed to move the proprietors but an avaricious and selfish desire to add to their wealth, even to the sacrifice of the health and lives of innocent women and children. A comprehensive sketch of the agitation and early enactment of laws regulating factory labor is thus given by the "Duke of Argyle" in his "Reign of Law."

"Very soon the course of every mountain stream in Lancashire and Yorkshire was marked by factories. This again had another consequence. It was a necessity of the case that such factories must, generally, be situated at a distance from preëxisting populations, and, therefore, from a full supply of labor. Consequently, they had to create communities for themselves. From this necessity, again, it arose that the earlier mills were worked under a system of apprenticeship. The due attendance of the requisite number of 'hands' was secured by engagements, which bound the laborer to his work for a definite period.

"And now, for the first time, appeared some of the consequences of gregarious labor under the working of natural laws, and under no restrictions from positive institutions. The mill-owners collected, as apprentices, boys and girls, youths and men, and women, of all ages. In very many cases, no provision adequate, or even decent, was provided for their accommodation. The hours of labor were excessive. The ceaseless and untiring agency of machines kept no reckoning of the exhaustion of human nerves. The factory system had not been many years in operation when its effects were seen. A whole generation were growing up under conditions of physical degeneracy, of mental ignorance, and of moral corruption. The first public man to bring it under the notice of Parliament, with a view to remedy, was, to his immortal honor, a master manufacturer, to whom the new industry had brought wealth, and power, and station. In 1802, the elder Sir Robert Peel was the first to introduce a bill to interfere, by law, with the natural effects of the unrestricted competition in human labor. It is characteristic of the slow progress of new ideas in the English mind, and its strong instinct to adopt no measure which does not stand in some clear relation to preëxisting laws, that Sir Robert Peel's bill was limited strictly to the regulation of the labor of apprentices. Children and young persons, who were not apprentices, might be subject to the same evils, but for them no remedy was asked or provided. The notion was, that as apprentices were already under statutory provisions, and were subjects of a legal contract, it was permissible that their hours of labor should be regulated by positive enactments. But the Parliament, which was familiar with restrictions on the products of labor, and with restrictions of monopoly on labor itself—which restrictions were for the purpose of securing supposed economic benefits—would not listen to any proposal to regulate 'free' labor for the purpose of avoiding even the most frightful moral evils.

These evils, however great they might be, were the result of 'natural laws,' and were incident to the personal freedom of employers and employed. In the case of apprentices, however, it was conceded that restrictions might be tolerated. And so, through this narrow door, the first of the factory acts was passed. It is a history which illustrates, in the clearest light, the sense in which human conduct, both individually and collectively, is determined by natural law. If Watt's steam engine had been invented earlier—if mills had not been at first erected away from the centers of population, in order to follow the course of the streams—if, consequently, the evils of the factory system had not begun to be observable in the labor of apprentices, there is no saying how much longer those evils might have been allowed to fester, without even an assertion of the right to check them. The act of 1802, though useless in every other sense, was invaluable, at least, in making this assertion.

"Meanwhile Watt's great invention had been completed. And now a new cycle of events began. When the perfected steam-engine became applicable to mills, it was no longer always cheaper to erect them in rural districts; on the contrary, it was often cheaper to have them in the towns, near a full supply of labor and a cheap supply of fuel. With this change came the abandonment of the system of apprenticeship. It was now 'free' labor which more and more supplied the mills. But this only led to the same evils in an aggravated form. Children and women were especially valuable in the work of mills. There were part of the machinery which might be fed by almost infant 'hands.' The earnings of children became an irresistible temptation to the parents. They were sent to the factory at the earliest age, and they worked during the whole hours that the machinery was kept at work. The result of this system was soon apparent. In 1815, thirteen years after he had obtained the act of 1802, Sir Robert Peel came back to Parliament and told them that the former act had become useless; that mills were now generally worked not by water, but by steam; that apprentices had been given up, but that the same exhausting and demoralizing labor from which Parliament had intended to relieve apprentices was the lot of thousands and thousands of the children of the free poor. In the following year, 1816, pressing upon the House of Commons a new measure of restriction, he added that unless the Legislature extended to these children the same protection which it had intended to afford to the apprentice class, it had come to this: that the great mechanical inventions which were the glory of the age would be a curse rather than a blessing to the country. These were strong words from a master manufacturer, but they were not more strong than true.

"Thus began that great debate which, in principle, may be said not to be ended yet; the debate, how far it is legitimate or wise in positive institutions to interfere for moral ends with the freedom of the individual will. Cobbet denounced the opposition to restrictive measures as a contest of 'mammon against mercy.' No doubt personal interests were strong in

the forming of opinion, and some indignation was natural against those who seemed to regard the absolute neglect of a whole generation and the total abandonment of them to the debasing effects of excessive toil as nothing compared with the slightest check in the accumulations of the warehouse. But the opposition was not in the main due either to selfishness or indifference. False intellectual conceptions, false views, both of principal and of fact, were its real foundation. Some of the ablest men in Parliament, who were wholly unaffected by any bias of personal interest, declared that nothing would induce them to interfere with the labor which they called 'free.' Had not the working classes a right to employ their children as they pleased? Who were better able to judge than fathers and mothers of the capacities of their children? Why interfere for the protection of those who already had the best and most natural of all protections? Such were some of the arguments against interfering with free labor.

"Now, in what sense was this labor free? It was free from legal compulsion; that is to say, it was free from that kind of compulsion which arises out of the public will of the whole community, imposed by authority upon the conduct of individuals. But there was another kind of force from which this labor was not free—the force of overpowering motive operating on the will of the laborers themselves. If one parent, more careful than others of the welfare of his children, and moved less exclusively by the desire of gain, withdrew his children at an earlier hour than others from factory-work, his children were liable to be dismissed and not employed at all.

"On the other hand, motives hardly less powerful were in constant operation on the masters. The ceaseless, and increasing, and unrestricted competition among themselves, the eagerness with which human energies rush into new openings for capital, for enterprise, and for skill, made them, as a class, insensible to the frightful evils which were arising from that competition for the means of subsistence, which is the impelling motive of labor.

"Nor were there wanting arguments, founded on the constancy of natural laws, against any attempt on the part of legislative authority to interfere with the 'freedom' of individual will. The competition between the possessors of capital was a competition not confined to our own country. It was also an international competition. In Belgium, especially, and in other countries, there was the same rush along the new paths of industry. If the children's hours of labor were curtailed it would involve, of necessity, a curtailment also of the adult labor, which would not be available when left alone. This would be a curtailment of the working-time of the whole mill, and this would involve a corresponding reduction of the produce. Outside of certain limits this is not, by any means, a necessary inference. No similar reduction of produce would arise in foreign mills. In competition with them the margin of profit was already small. The diminution of produce, from restricted labor, would destroy that margin. Capital would be driven to countries where labor was still free from such restric-

tions, and the result would be more fatal to the interests of the working-classes of the English towns than any of the results arising from the existing hours of work. All these consequences were represented as inevitable. They must arise out of the operation of invariable laws.

"Such were the arguments, urged in every variety of form, and supported by every kind of statistical detail, by which the first factory acts were vehemently opposed.

"And, indeed, in looking back at the debates of that time we cannot fail to see that the reasoning of those who opposed restriction on free labor met with no adequate reply. Not only were the supporters of restriction hampered by a desire to keep their conclusions within the scope of a very limited measure; not only were they anxious to repudiate consequences which did legitimately follow from their own premises, but they were themselves really ignorant of the fundamental principles which were at issue in the strife. Their conclusions were arrived at through instincts of the heart. The pale faces of little children, stunted and outworn, carried them to their result across every difficulty of argument, and in defiance of the alleged opposition of inevitable laws. And yet, if the supporters of the factory acts had only known it, all true abstract argument on the subject was their own. The conclusions to which they pointed were as true in the light of reason as they felt them to be true in the light of conscience."

The debate was a long, able, and continued one, but resulted, finally, in the passage of the law of 1819, to which was subsequently added the act of 1825. Neither, however, accomplished what was expected of them, owing to the fact that enforcing clauses were omitted, and thus the laws became inoperative. It was, however, the dawn of a new era, in relation to law as applied to the condition of labor, as it commanded the attention of the statesmen of the realm, culminating in the appointment, in after years, of investigating commissions and the enactment of additional laws.

An historic sketch of those laws would be too tedious and voluminous to be given in this report, but the following extract from a volume issued by Ludlow & Jones, on the "Progress of the Working Classes," gives a succinct statement of the work accomplished:

"The reform acts of 1832 found the factory-workers under twenty-one in the cotton trade, only protected from night-work between half-past eight, P. M., and half-past five, A. M. Those under eighteen, restricted to twelve hours' labor, or nine on Saturdays. Children under nine, forbidden to be employed. Eighteen hundred and sixty-seven sees the workers in all the leading branches of our textile industry—cotton, woolen, worsted, hemp, flax, tow, linen, silk—when worked under steam-power, enjoying the reduced hours of ten and a half a day, with a Saturday half-holiday, after two, P. M. If children are allowed to work at eight years of age, provision is made for their education. Various other branches of industry, such as print works, bleach and dye works, and lace factories, and processes connected with the protected manufactures, have been brought, with slight

variations of detail, into the system, and finally, though by a measure which has not yet had time to produce any effects on a large scale, a number of other manufactures and employments, whilst an efficient system of inspection has been instituted to see the system carried out."

The agitation of the ten hour system among the working people of this State, began as far back as 1834 and 1835, extending through many years. The custom of working twelve and thirteen hours per day became exceedingly obnoxious to the working classes, and great efforts were made to prevail upon proprietors to reduce the number of hours to ten per day. During the agitation strikes were frequent, including some rioting, accounts of which are partly given in another portion of this report. Injury to health, no time for leisure, recreation, or study, a total deprivation of social and innocent pleasure, by an all-work and bed system, was the great plea of the laborer, while the stereotyped objection of the employer was, that a reduction of the hours of labor would curtail production, and thus render them unable to successfully compete with like establishments in other sections of the country. Like other questions involving life and health, this, too, finally found its way into legislative halls, seeking positive restriction upon the hours of labor, and the minimum age of those employed. Thus, in March, 1848, an act of the Legislature was approved, which limited the hours of labor in all "cotton, woolen, silk, paper, bagging, and flax factories," to ten per day or sixty per week, and forbid the employment of children under twelve years, under a penalty of fifty dollars fine. However, a proviso was inserted that vitiated the ten hour system, as it authorized "that nothing contained in this act shall be construed to prevent minors above the age of fourteen years from being employed more than ten hours in any day, if the same be done by special contract with their parents or guardians."

This law was to go into effect on the succeeding July 4th. Its provisions, however, were not cheerfully acquiesced in as a rule by the millowners. In many instances there were "strikes," the employés refusing to work only in accordance with the provisions of the law, to which a limited number of establishments agreed, but a large proportion availed themselves of the aforesaid proviso, and made contracts with individuals to run as heretofore.

The following year (1849) the act of 1848 was repealed, and a new bill enacted into law, in which there is no proviso authorizing special contracts, nor any provision preventing the same. This act prohibits the employment of children under thirteen years of age in factories of the class enumerated in the act of 1848, and inflicts a penalty of fifty dollars for every offense, one half going to the party entering suit, and the other half to the county in which the offense was committed. The fourth and fifth sections are as follows:

"SECTION 4. That hereafter no minor who has attained the age of thirteen, and is under the age of sixteen years, shall be employed in any of the

factories aforesaid, for a longer period than nine calendar months in any one year, and who shall not have attended school for at least three consecutive months within the same year, and any owner or employer of, or in any of the factories aforesaid, offending against the provisions of this section, shall be liable to the penalty provided in the third section of this act, to be sued for, recovered, and applied as therein provided.

"Section 5. That from and after the fourth of July next, if any parent or guardian shall consent to, permit, or connive at the employment of his or her child or ward under the age of thirteen years in any of the said factories, or if such parent or guardian shall consent to, permit, or connive at the employment of his or her child or ward over the age of thirteen years and under the age of sixteen years, for a longer period than ten hours in any secular day, the person so offending shall forfeit and pay the sum of fifty dollars for every such offence, to be sued for and recovered as provided in the third section of this act, and for the uses therein specified."

The purpose of the foregoing was twofold, first, to prevent the employment of children under thirteen years of age, and secondly, that no minor over thirteen and under sixteen years of age shall be employed for a longer period than nine calendar months in any one year, and who have not attended school for three consecutive months within the same year. The humanity that conceived and brought about this legislation deserves the highest commendation. The employer who would continuously employ children of tender age within his establishment, subordinating their education and future condition to the accumulation of dollars and cents in his own coffers, should be reminded that these children are to be numbered among the citizenship of the future, and to whom, in part, will be committed the institutions of our State and country. The ability to sacredly guard the same, will be greatly enhanced by knowledge obtained through education in our public schools. Neither should the complaints of parents be heeded, that in the transformation of their children for a portion of the year from the factory to the school, there would be a decline in family earnings producing suffering and hardship. Any inconvenience arising therefrom would only be temporary, for like all changes of this character, which are subject to natural laws that are inevitable, wages would in time so adjust themselves, that the head of the family would earn sufficient for their support, for with the removal of the children, the wages of the adult would increase upon the same principle that the introduction of children in large numbers would have a tendency to decrease them. The provisions of this law are imbued, in the highest sense, with the spirit of benevolence and philanthropy, for it seeks to compel a guardian care of our youth, by those, who, in their selfishness, would pay more attention to the care and growth of their cattle and kine than of human beings. The wisdom that prompts the special care of a young colt or heifer, with a view of promoting their growth and final value is commendable; but all should be taught that the efficiency of youth in after life is of greater value, and should

not be imperiled by hardship and privations while in their tender years. But, while it is highly creditable to the great State of Pennsylvania, that a law of this character is upon our statute books, it is feared that its provisions are not fully complied with. In the tabulated returns from 532 establishments, engaged in the manufacture of textile fabrics, there are employed 3,548 girls under 15 years of age, just how much under that age is not stated, but a very large proportion are not over fourteen, while we are satisfied that quite a number are under the age of thirteen. From the same returns we have 4,183 boys under the age of 16 years, making a total of 7,731 employed in the number of establishments tabulated, and who come under the provisions of the act of 1849. The total number, of course, is actually greater than the above, as about 15 per cent. of all the factories in the State failed to make returns according to law. The average number of days worked in the foregoing establishments during the year 1881 was 284, leading plainly to the inference that the law is a dead letter so far as it requires three consecutive months' attendance at school "within the same year." Nor can this be wondered at, when we contemplate that the enforcement of the wholesome provision alluded to, devolves upon no one in particular, but is general in character, giving to the party suing, whoever it may be, one half the fine imposed. The incentive to prosecute, is not as a rule, a very efficient one, for unless assumed by some well-known official of a prominent humanitarian association, whose actions are usually commended; scarcely will any single individual embark upon such an enterprise, for when so doing, he is generally enrolled among what is denominated voluntary informers, an occupation that in these times, excites in our communities a feeling of greater contempt than of praise. The duty of observing that this humane and just law is enforced, should be invested in some local or county official, or classified among our school laws, making its enforcement a part of the duties of our county and city school superintendents.

Much contention arose over the ten hour system, as embodied in this law, for it will be observed that the act provides that "labor performed during a period of ten hours, on any secular day, should be considered a legal day's work," while the provision, as applied to the parents and guardians of minors under and above the ages given, states explicitly that they shall not permit them to be employed "for a longer period than ten hours on *any* secular day." The agitation gave rise to a number of "strikes," accompanied with a few disturbances of a riotous nature, ending, in some instances, in an acquiescence to the provisions of the law, while, in others, special contracts were made requiring labor to be employed more than ten hours a day. That this contract system was introduced, and became somewhat, if not wholly general, is evident from the provisions of a supplement that was enacted in 1855, which specifically states "that no male or female operative under the age of twenty-one *shall, under any contract*, be employed" "for a longer period than sixty hours in any one week, or

more than an average of ten hours a day during the same period." The act in full is as follows :

Section 1. *Be it enacted, &c.*, That from and after the passage of this act, no male or female operative under the age of twenty-one years shall, under any contract, be employed in cotton, woolen, silk, flax, bagging, or paper manufactories in this Commonwealth for a longer period than sixty hours in any one week, or more than an average of ten hours a day during the same period.

Section 2. That if any person shall knowingly employ, or any parent or guardian consent to the employment of, any male or female operative under the age of twenty-one years, as aforesaid, contrary to the preceding sections, and proof be made thereof before any alderman or justice of the peace of the ward, borough, or district where such offense is committed, he, she, or they so employing such operatives, or consenting thereto, as aforesaid, shall, for every such offense, forfeit and pay the penalty of not less than ten, nor more than fifty dollars, to be recovered before any alderman or justice of the peace of the proper ward, borough, or district in the same manner as the like penalties are now recovered, to be applied to the use of the public schools of the proper districts: *Provided*, That no penalty shall be recovered under this act, unless sued for within one month after the same shall have occurred; nor shall any person recover more than one penalty for the working of any factory for the same period of time.

Section 3. That all the ward, borough, and township constables are hereby authorized and required, and it is hereby made their duty to attend to the strict observance of the two preceding sections of this act, when complaint shall have been properly made to them of a violation of the same.

Approved May 27, 1855.

In some respects this "supplement" is an improvement upon the act of 1849, while in others it is not. It excels the act insomuch that it makes it the "duty of ward, borough, and township constables" to attend to the strict observance of the two preceding sections, when complaint shall have been properly made to them of the violation of the same. The minimum penalty, however, taken in connection with the proviso, tends greatly to make the law obsolete, as the possible penalty of only ten dollars, and that to be imposed but once in a given month, is greatly calculated to destroy the efficiency of the law. The object of making it "sixty hours per week, or an average of ten hours a day" was evidently to so regulate the hours from Monday to Friday by working more than the time alloted, in order that they might be deducted from the working time on Saturday, which, among all classes of mechanics, is almost universally a "short" day.

As a rule, the law is not adhered to, although, in many places, we are satisfied that it is, and that the hours worked during the week do not exceed sixty. In a number of localities, however, the sound of the first

bell or whistle can be heard in the morning at from 4.30 to 4.45 o'clock, summoning the hands to arise and prepare for the labors of the day; the second, at about 5.45, when they are expected to enter the factory, some to commence at 5.45, and at others at six o'clock. At noon they are allowed from forty to forty-five minutes for dinner, when they again resume work, continuing until six P. M., and in some places until 6.15. Upon Saturdays the time for commencement and for dinner is the same as upon other days, but they usually stop at noon in the eastern portion of the State, and in the west from two to 3.15 in the afternoon. Thus it will be seen, that the hours of labor extend from sixty-two to sixty-six per week, and in that way exceed the number alloted by law.

It is not claimed, as already stated, that this is an universal custom, for some stop their mills at noon upon Saturdays, others run until one, P. M., without dinner hour, and thus keep within an average of ten hours per day; but the facts will demonstrate, that a large number run their mills more than the sixty hours per week, which is not only contrary to the spirit of the law, but gives them a possible advantage in the productions of from two to six hours running time over those who adhere closely to sixty hours. That ten hours labor per day is fully as much as should be exacted from the employés we think cannot be gainsayed, and such is the spirit of the law, as well as the sentiments of all who take an interest in promoting the welfare of mankind in general, and of labor in particular. The justice of both law and sentiment becomes more apparent when we contemplate the class of labor employed in factories and their relation to future generations. To the strong and sturdy male adult the task of being compelled to labor more than ten hours per day might not seem arduous, more especially where the work assigned him is not of such a character as to be a drain upon his physical constitution; but while this exception may possibly be granted, its compulsory exaction from the large number of women, girls, and young children employed admits of no excuse. In the returns received by the Bureau, before alluded to, the number of women and girls over fifteen years of age, employed are 23,076; boys under sixteen, 4,183; and 3,548 girls under fifteen; in addition, there are enumerated as skilled and unskilled workmen, laborers, etc., 23,209; making a total of 54,016.

These figures, without special analysis, we presume are sufficient to convince the most skeptical of the wisdom of a systematic enforcement of the ten hour law by proper legislation, to the end that youth be protected, the condition of life be ameliorated, and the future of our State be promoted. Nor should the law be confined to factories alone, but extended to all industries where women and children are in any manner apt to be employed, to the detriment of life and health, and where children are denied the opportunity of embracing the advantages given under our munificent school system of obtaining at least the elements of a moderate education.

FIRE ESCAPES.

The act of June 11, 1879, requiring the construction of external means of escape in case of fire in factories, hotels, school-houses, manufactories, or workshops of any kind, where people are employed or congregate in third or higher stories, will be found in full in another part of this report. The passage of this act was intended to compel proprietors to provide safe and ample means of egress from buildings, when, in case of fire, or otherwise, life was in danger, but, unfortunately, does not make it incumbent upon any person or persons, to enforce their erection, and thus exact full compliance with the law. The provision that renders proprietors who neglect liable to damages, in case of the loss of life, or injury, is well enough, so far as it goes; but dollars and cents will not restore life nor limb, and thus, as a recompense, avails nothing; hence, the necessity of compelling adequate means of escape. The apparent great want of an enforcing clause has been fully demonstrated in the late disastrous burning of the Randolph Mills, Landenberger & Co., Philadelphia. This fire occurred on the night of October 12, 1881, at a time when forty-one persons were at work, of which number only sixteen escaped uninjured, or with trivial injuries; nine were killed, or died within a few days; while the remainder were all severely injured, some of them maimed for life. The facts concerning this fire are so well known that it is unnecessary to report them here. Its cause and responsibility is concisely given in the verdict of the coroner's jury, as follows:

Verdict.—"The jury in the inquest on the bodies of Mary E. Matherson, Jas. M. Munn, Frederick Kreh, Elizabeth Franks, Henry Mounan, George Dougherty, Anastasia Brady, John J. Brown, and Annie M. Straub, find they came to their deaths from burns and injuries received at the fire in the 'Randolph Mills,' No. 1711 and 1713 Randolph street, on October 12, 1881.

"That the fire was caused by the improperly constructed and inefficiently managed apparatus for lighting the building.

"That Joseph Harvey, owner of the mills, is criminally responsible for the loss of life, in neglecting to furnish proper means of escape in case of fire.

"That the city of Philadelphia is responsible for not enforcing the laws, in compelling Joseph Harvey to erect proper fire-escapes.

"That the book-keeper, William R. Hassenpat, is censurable for not making some efforts to save the lives of the operatives instead of the effects of the office."

On the day following the inquest, the owner of the mills, Mr. Joseph Harvey (Landenberger & Co. being the lessee) was arrested upon a summons issued by the coroner, and by him committed to jail, but before executed,

he appeared with his counsel in court and entered bail in the sum of $10,000. In a well-regulated community like Philadelphia, it would seem impossible that a non-observance of law, by a firm or individual, where life was imperiled, would be tolerated, but it was, and simply from the fact that no one was empowered to observe that the law was complied with, and thus the owner would save his money and take the risks, rather than voluntarily go to the expense of erecting fire-escapes. There had existed, by authority of the city councils, a local board of fire-escapes, but that body failed to provide means to pay them for the necessary time and expenditure in the performance of their investigation, and, as a result, the functions of the board ceased. The folly of the abandonment of such an important and useful commission for the want of means has been taught a very severe lesson. Since this disaster the councils have enacted an ordinance for the "erection, registration, and inspection of fire-escapes, under the direction and approval of the board of fire commissioners and fire marshal, whose duty it is to see that all the requirements of the law in regard to fire-escapes are complied with, and to report to the city solicitor all cases of violation of any of the provisions of the act of Assembly of June 11, 1879, and the city solicitor shall thereupon institute proceedings for the collection of penalties or the due enforcement of the law against the person or persons so offending." Similar proceedings should be had in other cities, by the respective councils; and, in order that all other localities may be surely protected the Legislature should make it the duty of some county or local official or officials throughout the State to see that the law is fully complied with, for a repetition of such a disaster as that at the Randolph mills, in any part of the State, should be made practically impossible. No desire to save money should be allowed to place human life in jeopardy. It is not assumed that any manufacturer would, of his own knowledge, conduct his business or operate his works in such a way as to endanger the lives of those in his employ, but the probabilities are that some are heedless, and if so, should be restrained by law. Doubtless there are many who adopt such means, as they, in their judgment, deem necessary, but who, upon consultation with efficient officials, would be convinced that to secure absolute safety, much more is required. Some have an aptitude to foresee and thus provide for accidents of almost every description; but, as a rule, such men are rare exceptions, and always will be. Others again, with no greater desire to accumulate, and with affections as tender as the tenderest, go onward without giving a thought of the possible danger that might, at any time, overtake them, and the health and lives of those in their employ. Their ignorance in this particular would be dispelled by the compulsory erection of a safe and ample means of escape in times of distressing danger.

The following table shows the condition of mills in the manufacture of textile fabrics throughout the State, and are compiled from returns made, in answer to the queries sent from this office, showing the number of stories, number of employés in each story, and the means of escape in case of fire:

MEANS OF ESCAPE,

In case of fire or panic, from the upper stories of mills.

Office number of mill.	Location of Mill and Class of Goods Manufactured.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	Means of Escape in Case of Fire or Panic.
	Philadelphia county.							
3681	Carpets and carpet yarns,	3					39	Straight stairway running from the third floor to the front door.
3685		2	1	5			6	
3688		3	8	15	15		38	
3690		2	2	16			18	
3693		3	3	4	4		11	Stairs three feet wide.
3699		2	7	5			12	Outside stairway.
3701		3	3	5	18		26	Wooden stairway.
3703		2	5	9			14	Stairways.
3710		4		6	6	7	19	Stairs, doors or windows.
3712		3		18	12		30	
3713		4	2	9	12	13	36	
3714		3	12	21	35		68	
3717		3		5	4		9	
3723		2	7	4			11	
3728		3	1	11	11		23	Inside stairs at end of building.
3729		2		9			9	Two stairways.
3732		3	4	20	17		41	Outside stairway.
3741		3	8	12	13		33	Wide stairway inside building.
3751		4	53	47		11	111	Inside stairway.
3754		2	8	24			32	Outside and inside stairway.
3755		3	4	20	26		50	Outside and inside stairway.
3772		4	73	49	106	45	273	Two stairways from the fourth to the third floor, and three stairways from the second and third floors.
3778			8	55	26		89	Power-mill two and hand-mill three stories in height. Hand-mill inside stairs and outside iron ladders and platforms. Power-mill inside stairway only.
3781		2	4	11			15	Wooden stairway outside.
3785		4		1	15		16	Inside stairway,
3802		3	3	10	17		30	Two stairways; one inside, the other outside through private dwelling house.
3804		3	4	20	34		58	Two large stairways.

MEANS OF ESCAPE—Continued.

Office number of mill.	LOCATION OF MILL AND CLASS OF GOODS MANUFACTURED.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	MEANS OF ESCAPE IN CASE OF FIRE OR PANIC.
	Philadelphia county.							
3806	Carpets and carpet yarns,		7	18	25		50	Front building three and back building two stories. Back stairway to second floor; front stairway to third floor. Fire escape for outside ordered but not up.
3809		4		1	9	8	18	
3816		4	3	15	22	10	50	Stairway.
3817							125	Two and five stories in height; outside stairway.
3818		3	2	9	16		27	Two stairways; one front, the other in the rear.
3820		4	17	35			52	Inclosed stairway outside.
3822		2	3	6			9	Outside stairway.
3825		3		7	6		13	Outside stairway.
3692		3			12		12	Outside stairway.
3824		3	50	38	36		124	Two stairways inside.
3789		2	7				7	
3695							449	Two buildings—four stories and basement. One building four stories, and one building two stories and basement. Staircases both ends of mill. Fire escapes now being erected.
3702		2	6				6	Outside stairway.
3704		3	1	14	14		29	Inside stairway. A fire ladder is about to be erected.
3705		4	9	12	32	53	106	Inside stairway and outside fire escape.
3715		3	11	10	14		35	One stairway.
3720		4	1	20	15	15	51	Ordinary stairway.
3731		3		11	12		23	
3737		3	2	3	7	5	17	Regular stairway.
3738		3	2	6	9		17	Outside stairway.
3743		3		7	8		15	Inside stairway.
3759		3	14	38	42		94	Stairway.
3762		2	12	11			23	Stairway three feet wide, with door front and back.
3777		3	2	12	7		21	Stairway.
3783		1	10				10	
3786		3			7		7	Outside stairway from third floor. The rest of the building is used as a dwelling.

3788	3	....	....	....	....	104	Two means of escape from each room at opposite ends, which have fully answered in two instances in which we were burned out.
3792	2	5	12	....	....	17	
3795	3	....	10	13	....	23	Two stairways and bridge.
3811	3	....	2	16	....	18	One stairway, one door. Two windows at each end of building landing on a two-story building.
3812	3	....	15	14	...	29	Good, the stories not being very high, and there is no danger in case of fire. Built for making into private houses.
3814	3	6	10	9	....	25	Outside stairway.
3821	5	20	46	....	....	....	Outside staircase brick, and independent of the mill.
3826	3	2	7	9	....	18	
3763	....	....	12	19	....	31	No fire escapes.
3764	4	20	56	86	88	250	Putting up fire escapes.
3706	4	9	11	5	6	31	
3711	5	126	62	115	100	403	Two mills. Three inclosed brick stairways. Outside fire escapes to be erected.
3760	3	46	57	96	....	213	Dye-house. Fourteen persons. Fire proof staircase, inclosed. Bridge from second story to dye-house. Also, arranging other means of escape.
3765	2	6	5	....	....	11	Outside stairs from second story.
3770	3	30	35	30	....	95	By stairway at each end of every floor inside, and stairway at one end outside.
3807	2	2	18	....	....	20	Wooden stairway.
3823	4	....	9	15	17	41	Fire escape in course of erection.
3686	3	10	10	10	....	30	Ample.
3687	....	....	....	....	....	....	Two mills. One three stories, the other four stories. Ample.
3696	5	84	31	81	81	315	Fifth floor, thirty-eight persons. Outside iron stairway.
3739	3	2	12	8	....	22	
3768	3	3	20	20	....	43	None.
3780	3	2	8	....	....	10	Stairway in center of building. Egress ample and easy.
3791	3	2	23	15	....	40	Fourfoot-stairway.
3798	3	2	5	7	...	14	No fire escapes. Two windows lead out on a roof. Same floor by means of a door to flat.
3808	2	7	17	....	....	24	
3776	3	7	35	20	...	62	Two inside stairways, each twenty-five feet distant from either end of building; and cupalo on roof, with stairway leading thereto.
3744	3	....	5	12			
3733	2	8	11	....	....	10	Outside stairway.
3734	3	....	....	8	....	8	Outside stairway.
3736	3	60	62	64	....	186	Three outside fire escapes to be erected in March.
3697	2	4	6	....	....	10	Stairway.
3718	3	....	6	8	....	14	Stairway.
4408	3	14	20	25	....	59	
3790	2	20	8	....	....	28	Large stairway and outside platform.
3749	2	6	3	....	....	9	
3771	4	75	75	84	84	318	Four inside and two outside stairways from top to bottom.
	Allegheny county.						
3827	Cotton goods, ... 4	111	118	88	85	402	(Two mills.) Wide stairway in building, and wrought-iron fire escape on outside of first building. Wooden ladder on outside of second mill.
3829	5	80	48	50	84	262	Stairway in tower, and three ladders; two of the ladders permanent, with platform from each story.

MEANS OF ESCAPE—Continued.

Office number of mill.	LOCATION OF MILL AND CLASS OF GOODS MANUFACTURED.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	MEANS OF ESCAPE IN CASE OF FIRE OR PANIC.
	Berks county.							
3830	Cotton goods,	4	34	90	60	28	212	Front stairs, and two fire escapes at rear of mill.
	Chester county.							
3904	Cotton goods,	4	....	10	22	5	37	First and second floors open on ground; outside stairway from third and fourth stories.
3907	. . . . .	4	6	40	17	9	72	Stairways at each end of mill.
	Dauphin county.							
3831	Cotton goods,	4	53	59	64	65	241	Iron ladders from top of mill to ground, at each end of mill.
	Delaware county.							
3834	Cotton goods,	....	136	182	55	13	386	Part of building four stories and part two stories; stairway at each end, one of which is built entirely outside; platform and stationary fire ladders outside windows.
3835	. . . . .	3	28	....	....	....	28	Occupy first floor only.
3838	. . . . .	3	125	75	50	....	250	Three outside fire escapes; three stairways.
3839	. . . . .	3	69	39	10	....	118	Three stairways and an elevator; thirteen doors on first floor, in constant use; a one-story roof, running the entire length of mill, on one side; one stairway outside, at each end of mill, from second story.
3840	. . . . .	3	45	100	90	....	235	Two main stairways in projections built for that purpose, and two iron ladders.
3926	. . . . .	....	....	....	....	....	331	One building, five stories; one, four stories; and two, three stories. Five-story building, stairway at each end and iron ladder in center.
3844	. . . . .	....	....	....	....	....	272	Two mills, two stories; one mill, three stories. Outside stairways, iron fire escapes.
3871	. . . . .	5	9	14	76	35	140	Fifth floor, six persons. Mill is 50x230 feet; fire-proof wall, with iron doors, one third of way. Outside stairway at each end of building, with a ladder on the opposite side.
3922	. . . . .	3	20	57	3	....	80	Five doors.
3928	. . . . .	2	....	....	....	....	126	Stairway at each end of mill.
3935	. . . . .	2	51	15	....	....	66	Two stairways.

3916		2	15	7	. . . .	. . . .	22	Stairway inside.
3917		3	79	51	24	. . . .	154	Stairway outside of mill.
	Lancaster county.							
3845	Cotton goods,	1	. . . .	. . . .	. . . .	. . . .	176	Mill all one story.
3847		4	116	137	71	61	385	At each corner of both mills, outside ladders with platforms at each story.
		4	59	108	45	21	233	
3936		5	88	55	44	34	253	Fifth floor, 32 persons. Two brick towers inclosing stairways, one at side, the other at end of mill; both built outside of mill walls; also, two sets of outside platforms, with railings thereto, communicating with ladders.
3846		3	90	58	27	. . . .	175	Stairways on outside of mill.
	Montgomery county.							
3848	Cotton goods,	4	50	22	56	22	150	Two stairways.
3849		4	37	60	28	5	130	Ladders outside.
3938		4	. . . .	4	9	18	31	Second and third stories comes out to ground floor; fourth story, one flight of steps to the ground floor.
3941		3	32	61	60	. . . .	153	One large stairway; on upper floor, one bridge; also, two doors besides stairway on second floor, and four doorways on first floor.
3939		4	30	20	9	1	60	One flight of stairs.
3951		2	60	17	. . . .	. . .	77	
3949		4	8	8	49	15	80	
3948		4	6	8	20	36	56	By ladders from rear part of mill, which is but three stories from ground.
3946		4	18	46	10	5	79	Outside open stairway.
3947		. . . .	8	39	. . . .	. . . .	47	Two buildings; one two story, the other three story.
	Northampton county.							
3952	Cotton goods,	4	. . . .	. . . .	. . . .	14	. . . .	Stairway separate from building.
	Philadelphia county.							
3851	Cotton goods,	3	3	25	20	. . . .	48	From second story to roof of engine-house.
3852		5	12	32	20	25	125	Fifth floor, 36 persons. Stairway encased in stone tower outside of mill.
3854		5	. . . .	24	. . . .	. . . .	24	
3855		1	44	. . . .	. . . .	. . . .	44	
3858		5	. . . .	. . . .	. . . .	. . . .	752	
		8	. . . .	. . . .	. . . .	. . . .	. . . .	One centre stairway inclosed in brick wall, and two other stairways inside at each end, and two outside double fire escapes, about 60 feet from ends of mill.
3859		5	. . . .	. . . .	. . . .	30	43	Fifth floor, 13 persons. Means of escape at each end of building.
3860		2	27	33	. . . .	. . . .	60	Stairway.
3861		2	22	8	. . . .	. . . .	30	One door at each end of mill and one door at side of lower story.
3862		4	40	45	40	80	205	Ladders and bridges.
3863		2	13	33	. . . .	. . . .	46	Two eight feet doors on side of mill and 4½ feet stairway, and at rear end of upper story, an escape from window.
3865		4	5	24	21	4	54	External iron stairway.
3870		4	. . . .	. . . .	6	2	8	One stairway inside and one outside.
3874		4	. . . .	6	. . . .	2	8	One stairway inside and one outside.
3876		4	36	48	48	12	144	Four straight bridges leading to another building 30 feet from mill.
3881		2	12	15	. . .	. . . .	27	A door in each end of mill and one in the side.
3883		3	29	80	15	. . . .	124	None considered necessary on account of free egress and ingress, but application made to Board of Fire Commissioners to visit.
3884		4	4	20	19	7	50	Outside brick stairway.
3887		3	11	2	. . . .	. . . .	13	By bridges connecting with adjoining building.

MEANS OF ESCAPE—Continued.

Office number of mill.	Location of Mill and Class of Goods Manufactured.	Number of stories of mill in high.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	Means of Escape in case of Fire or Panic.
	Philadelphia—continued.							
3892	Cotton goods,	3	6	60	21	. . . .	87	Fire escape.
3395		4	. . . .	. .	40	36	76	
3897		5	100	49	25	19	196	Fifth floor, three persons. Two stairways, one at each end of building.
3899		5	. . . .	. . . .	. . . .	21	21	Stairway on side in center of mill.
3955		2	11	59	. . . .	. . . .	70	Mill built on the side of a hill. The means of egress are through doors, which are on a level with the surface outside. (This applies to both stories.)
3960		2	19	. . . .	. . . .	. . .	19	Door in center of mill and at end.
3962		5	6	16	33	34	95	Fifth floor, six persons. Stairs in front, and outlet in back of building.
3970		5	6	16	58	42	160	Fifth floor, thirty-eight persons. Outside stairway at end of mill. Iron fire escape at side of mill.
3977		3	34	11	6	. . . .	51	Third story, two stairways; second story, three stairways; and first story, two doors.
3979		4	26	47	50	42	165	Two iron fire escapes on street.
3892		3	32	15	48	. . . .	95	Outside stairways, both ends of mill.
3893		4	139	103	105	78	. .	Fifth and sixth stories, sixty persons.
		6	. . . .	. . .	. . .	. . . .	. . . .	Broad stairways.
3872		3	4	42	. . . .	. . . .	46	One inside and one outside wooden stairway, from second story.
3994		4	7	24	40	8	79	Stairway outside of main building.
3995		4	65	. . . .	65	6	136	Inside staircase at east end of mill, inside staircase in center, and iron outside staircase at west end.
3857		2	119	160	. . . .	. . . .	279	Three inside stairways, in general use.
3864		5	. . . .	59	. . . .	. . . .	59	Fire-proof stairway in center of building, and another one at the front of the building.
3850		5	110	40	30	. . . .	180	Fire-proof stairway in building. Two iron fire escapes, roof to ground. Three other outlets.
3894		2	6	8	. . . .	. . . .	14	Rear stairway.
3975		4	8	29	. . . .	13	50	Outside brick stairway, independent of mill.
4144		3	19	37	20	. . . .	76	Bridge leading from third floor to roof of engine-house, with three-foot stairway leading to ground. Second story windows only nine feet from ground on one side. First floor, basement.

3999		3	46	58	54	. . . .	158	Three inside stairways. Building divided into apartments by brick walls. Can escape from one part to another on each story.
3877		3	. . . .	. . . .	35	. . . .	35	Fire escape on mill.
3961		2	63	51	. . . .	. . . .	114	Wooden bridges leading from second story into adjoining mill, and three entrances.
4428		2	5	49	. . . .	. . . .	54	Three inside stairways.
	Berks county.							
3901	Cotton and woolen goods, . . .	2	15	34	. . . .	. . . .	49	Doors opening on ground. Hill back of mill easy of excess.
3902		3	8	20	28	. . . .	56	By outlet through roof to adjoining buildings, at either end.
	Chester county.							
4017	Cotton and woolen goods, . . .	4	7	11	4	5	27	Stairway at each end of mill, with other means of escape from roofs, windows, etc.
	Delaware county.							
3833	Cotton and woolen goods, . . .	3	20	12	43	. . . .	75	One staircase and platform to adjoining building, five feet distant.
3913		2	31	9	. . . .	. . . .	40	Two staircases at each end of mill.
3915		2	98	31	. . . .	. . . .	129	Two stairways, one at end of factory in tower, the other at center of building. Two folding doors with block and tackle.
3919		2	67	38	. . . .	. . . .	. . . .	Two stairways in each room.
3920		2	36	16	. . . .	. . . .	52	Outside stairway.
3929		3	. . . .	. . . .	. . . .	. . . .	304	Three mills. Outside stairway and tower at each mill, and an inside stairway, besides iron ladder at center of each mill.
3930		4	8	21	7	. . . .	36	Mill situated on the side of a hill.
3933		. . . .	95	94	75	4	268	Mills three and four stories. Door and stairway end of back room. Ladders outside of mills.
4018		3	12	32	8	. . . .	52	By stairways and by windows opening on adjacent building.
3934		4	10	15	20	5	50	Stairways and passages at both ends of mill.
3921		3	21	58	13	. . . .	92	Stairways and ladders.
	Montgomery county.							
3940	Cotton and woolen goods, . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	Five mills. Nos. 1, 4, and 5, four stories; No. 2, three stories; No. 3, five stories. Twenty to seventy-five hands employed on each floor. Escape by bridges from one mill to another.
3943		3	16	44	13	. . . .	73	Two movable ladders.
3944		. . . .	8	98	17	. . . .	123	Main mill, three stories. Weaving mill, one story. Stairway in each end of main mill, from second story of main mill to roof of others, or to ground but a few feet at one end.
	Philadelphia county.							
3954	Cotton and woolen goods, . . .	1	170	. . . .	. . . .	. . . .	170	Windows and doors.
3853		3	33	8	20	. . . .	61	Outside stairway.
4053		3	67	65	23	. . . .	155	Wide stairway each end of building. Second story on level with ground.
3958		5	. . . .	. . . .	. . . .	73	177	Fifth floor, seventy-four persons. Two iron stairways outside of mill, one wooden stairway in mill.
3963		5	50	54	32	28	193	Fifth floor, twenty-nine persons. Two stairways.
3965		4	. . . .	. . . .	. . .	44	44	Two stairways, and one door into another mill.
3868		5	. . . .	46	46	27	125	Fifth floor, six persons. Stairway and fire escape, extending on outside of building to top story.
3967		4	. . . .	. . . .	70	. . . .	70	Brick stairway at one end of building and one in middle of building.
3969		5	. . . .	54	. . . .	14	. . . .	Fifth floor, fifty-eight persons. Occupy part of two mills. Four iron ladders and three wooden stairways, the latter are only temporary structures.

MEANS OF ESCAPE - Continued.

Office number of mill.	Location of Mill and Class of Goods Manufactured.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	Means of Escape in Case of Fire or Panic.
	Philadelphia county.							
3869		3	3	7	7	. . .	17	
3841		2	64	19	. . . .	. .	83	Stairway at each end.
3971		5	58	33	32	7	149	Basement, nineteen persons. An iron stairway inclosed in brick tower near one end of building, and a regular iron fire escape near other end.
3976		3	12	17	52	. .	81	Stone stairway outside of building.
4066		3	. .	43	16	. . . .	59	Stairway at each end of mill.
3878		3	. . . .	. . . .	8	. . . .	8	Stairway.
3879		4	36	46	. . . .	. . .	82	One double escape, ten feet long, east side; one single escape, five feet long, west side; one single escape, five feet long, south side; and stairway on north side.
3984		. . . .	10	35	39	10	94	Two mills, three and four stories, respectively. Contract made for iron platform and ladders for each mill.
3885		4	14	10	20	15	59	Front and back, and wide stairways.
3989		3	. . .	22	42	. . . .	64	Stairway at each end of mill, and two-story brick building in front of mill.
3891		5	. . . .	. . . .	. . . .	. . . .	. . .	re escapes.
3991		5	40	12	40	40	155	Fifth floor, twenty-three persons. Two outside iron fire escapes; also, one brick and iron stairway erected since last report.
3996		5	. . . .	36	67	91	194	Two mills. Iron ladders on front of each mill, at both ends.
3898		4	. . . .	. . .	. .	. . . .	180	Two inside stairways, at opposite ends of mill, and one extending midway of mill.
3957		4	. . . .	. . . .	. . . .	. . . .	559	Two fire escapes on Washington avenue, one on Camilla street, and two leading into the yard.
3986		5	51	86	98	90	360	Fifth floor, thirty-five persons. Four mills. Staircases outside of mills, bridges connecting mills, and outside iron escapes now in course of erection.
4059		5	50	13	. . .	114	234	Fifth story, fifty-seven. An outside staircase. Two mills.
3998		. . . .	220	242	181	143	835	Fifth floor, forty-nine persons. Eight buildings—one, two stories; one, three stories; two, four stories; and four, five stories in height. Eight stairways in brick towers and two inside stairways. Buildings all connected by bridges on each story; can escape from one building to another without using stairway.
4060		6	. . . .	. . . .	. . . .	. . . .	200	Enclosed stairway, and two-story buildings around.

	Allegheny county.							
4001	Woolen goods,	3	10	10	21		41	Three stairways.
	Armstrong county.							
4003	Woolen goods,	3	18	7	3		28	Inside and outside stairways.
4004		2	2				2	Doors or windows.
4005		3	40				40	Mill built next to a hill, and one-story building at rear end; escape ample.
4006		3	17	5	2		24	
4007		2	6	22			28	Doors.
	Beaver county.							
4008	Woolen goods,	3	2	6	4		12	First and second floors level with ground.
	Bedford county.							
4009	Woolen goods,	4	2	5	4	1	12	Stairs in mill, and ropes and ladders outside, not attached.
3900		3	1	6	2		9	
	Berks county.							
4010	Woolen goods,	2	15	28			43	Building so situated that each floor can be entered from the ground.
	Bradford county.							
4012	Woolen goods,	3					5	Two doors leading outside from each floor.
4013		3	1				4	Stairway in vestibule; ladders by windows.
	Bucks county.							
4014	Woolen goods,	3	85	34	13		132	Outside stairways.
	Chester county.							
4015	Woolen goods,	3	37	18			55	Ground.
4016		4	5	8	26		39	From third floor there are four windows open on to a roof, nearly at level.
	Clinton county.							
4018	Woolen goods,	3	1	2	3		6	Doors and windows.
4019		3	1	3	4		8	Broad stairway, and door in each story, at end of building.
	Columbia county.							
4020	Woolen goods,	4	1	5			6	Stairway.
4021		3	1	1	3		5	Stairway.
	Crawford county.							
4022	Woolen goods,	2	4				4	Double doors and good stairway.
	Delaware county.							
4029	Woolen goods,	4	30	17	44	11	102	Inside stairways. (Three buildings.)
4025		2	31	112			143	Outside stairways.
4028		3	71	16	13		100	Two stairways, one at each end of building; movable ladders.
	Erie county.							
4032	Woolen goods,	2	4	5			9	
4033		3	2	3			5	Regular doorway.
	Franklin county.							
4034	Woolen goods,	3	24	16	40		80	One fire escape ladder from attic to ground.

MEANS OF ESCAPE—Continued.

Office number of mill.	LOCATION OF MILL AND CLASS OF GOODS MANUFACTURED.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	MEANS OF ESCAPE IN CASE OF FIRE OR PANIC.
	Franklin county—Continued.							
4035	Woolen goods,	3	2	3	6		11	Broad stairway.
	Fulton county.							
4036	Woolen goods,	3		4	3		7	Front doors.
	Huntingdon county.							
4037	Woolen goods,	2	3	6			9	Windows and doors.
	Indiana county.							
4038	Woolen goods,	3	3	3	7		13	Windows and doors.
4039		3	3	2			5	Through basement or windows.
	Lackawanna county.							
4040	Woolen goods,	3					9	Permission to jump out of the windows.
	Lycoming county.							
4043	Woolen goods,	3	8	15	3		26	
4044		4	3	25	9	2	39	Iron fire escapes on outside of building. Two landings on each floor.
	Mifflin county.							
4046	Woolen goods,	4	1	6	3	1	11	Stairs from one floor to the other.
	Monroe county.							
4047	Woolen goods,	3	24	10	15		49	Stairway rear of mill, and stairway in tower in front of building.
	Montgomery county.							
4048		2	227	60			287	
4049		4	23	27	15	9	74	

	Philadelphia county.							
3988	Woolen goods,	3	68	6	2		76	Two large doors opening outwards, and two small ones. Eight windows ground floor. Stairway and elevator. Second story opens on roof of first story. Four windows. Third story but ten feet from roof.
3990		5	40	35	35	15	126	Three stairways, each four feet wide, and each fire proof from the other.
4051			25	50	6	25	106	Rent two stories in one mill and three in another. Stairways.
4054		4	85	68	102	20	275	Iron stairs, fire escape, &c.
4062		3	210	17	20		247	Fire escapes throughout the mill.
4065		3	6	4	6		16	Steps leading down on the south side of building.
4069		5	154	150	81	60	445	Four fire escapes, and two more in erection, beside stairway in the mill.
4071		3	4	35	58		97	Steps on outside in the yard from third floor to roof of engine-house. Also, to a one-story brick building.
4077		3		39	53		92	Inside stairway.
4148		2	36	30			66	Egress at either end of mill.
4199		3	21	29	38		88	Two stairways and three ladders outside.
4142			105	57	41	19	222	Three and five stories in height. Inside stairways, outside fire escapes.
	Sullivan county.							
4079	Woolen goods,	3	2	3			5	Stairway.
	Tioga county.							
4080	Woolen goods,	3	2	4			6	Stairways.
	Union county.							
4081	Woolen goods,	2	27	24			51	Stairway at end of mill.
	Allegheny county.							
3828	Yarns,	4	7	19	24	12	62	Main stairway, and by roof of engine-room and dye-house adjoining. Two stories high.
	Armstrong county.							
4084	Yarns,	2	1	3			4	Only by windows or doors.
4085		2	3				3	Door at side, and one at east end.
	Bucks county.							
4087	Yarns,	2	120	140			260	Outside stairs, each end and in middle of mill.
4088		4		8	18	2	28	Outside stairway, or jump out of the window if badly frightened.
4089		5	1	11	21	10	44	Attic, one person; outside stairway from top to bottom.
	Chester county.							
4090	Yarns,	4	8	25	35	27	95	By way of staircase, engine-house, carding-house, machine-shop, and on roof of machine-shop.
	Delaware county.							
3836	Yarns,	3	4	25	3		32	Three means of exit for first and second floors, and two for third floor.
3912		4	19	14	19	4	56	Stairways.
4092		2	58	25			83	Three stairways.
4093		3	89	134	27		250	Two stairways—one at each end.
4094		2	34	27			61	
4097		3	1	24	11		36	Stairway at one end and ladder at the other end of mill.
4099		4		7	6	3	16	Stairway.
4101		2	9	28			37	Ladder on side of mill.
4102		2		1			1	Stairway.
4103		3	49	41	24		114	Stairways at each end of mill and fire escape ladders on each side.
4104		2	8	6				All can get out in a minute at either end of mill.

MEANS OF ESCAPE - Continued.

Office number of mill.	LOCATION OF MILL AND CLASS OF GOODS MANUFACTURED.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	MEANS OF ESCAPE IN CASE OF FIRE OR PANIC.
	Delaware continued.							
4105	Yarns,	2	....	....	....	....	1	Out of front door.
4107		2	1	3	....	....	4	Both floors open on the ground.
4100		4	2	8	17	10	37	Ordinary stairway in tower outside.
	Lancaster county.							
4111	Yarns,	2	20	44	....	....	64	Large stairway and double doors in the tower, situated in center of building, and stairway with front and rear entrance by doors at one end.
	Montgomery county.							
4114	Yarns,	3	12	12	12	1	37	
4115		4	1	3	5	3	12	Easy of escape.
4116		3	6	18	14	....	38	Exit at each end of mill.
4117		5	35	25	33	11	104	Five ladders and three pair stairs.
4120		2	16	26	....	....	42	Iron ladders with landing along two windows of second floor.
4121		2	7	....	....	....	14	Stairway each end of mill.
4123		4	14	42	29	1	86	Ample.
	Philadelphia county.							
4124	Yarns,	5	16	....	....	....	16	Fifth floor can get out at the top, having connection with bank, also fourth floor.
4125		4	17	20	....	....	37	Stairway at each end of building opening into the street.
4126		4	14	9	9	11	43	Two stairways—one at each end of mill.
4127		....	25	26	37	....	88	One mill four stories, the other five stories. One mill connected with the other with fire proof doors.
4129		4	1	5	8	6	20	No fire escape at present, but there are doors in every room and sheds on three sides.
4209		4	15	....	....	....	15	Two inside and one out.
3857		4	4	22	55	3	84	Iron landings at ends of mill with iron ladders from fourth floor to ground; also, stone stairway in tower in front of mill.

4131	5	45	95	100	90	450	Fifth floor, 120 persons. Four mills; straight iron staircase from fifth floor to ground, continuous; also, bridges from the main mill to other buildings.
4135	3	9	12	10	....	....	Each floor opens on the ground.
4136	3	....	28	....	....	28	Two stairways.
4139	5	....	....	....	....	70	Two brick-inclosed stairways, about 180 feet apart.
4140	4	85	75	107	60	327	Outside ladders from various buildings, over the roofs, and inside stairway in each building.
4141	5	....	....	....	16	16	Stairways.
4143	3	3	12	3	....	18	One stairway from third floor to second at doorway in the two-story building. The second story has door on level and two stairways to first floor.
4130	3	25	35	20	....	80	Iron stairs, fire escapes, etc.
3866	1	278	....	....	....	278	Fire-proof mill, iron doors.
4145	3	9	7	....	....	16	Wooden stakes, extending up to the second story.
4146	2	15	13	....	....	28	Four-foot stairway at each end of mill.
4147	....	13	13	....	....	35	Main mill two stories and basement. Picker mill one story. Picker mill nine persons; second story connected with first by wide inside stairway leading direct to main entrance with large door opening on the ground; also, two outside fire escapes at each end of second story. Picker mill entirely separate.
4149	3	4	15	16	....	35	Mill built on side of hill; second story opens on to the bank; third story ten feet above bank, with gangway leading to it.
4150	3	10	11	....	....	21	Outside, iron escape above end of building; stairway at other. One story building at one side of mill accessible from second story.
4151	3	22	....	....	....	22	A temporary wooden ladder: construeting a permanent one.
4153	3	12	8	8	....	28	
4155	5	....	....	....	16	33	Fifth floor, seventeen persons. Iron fire escape on each side of the building.
4156	3	....	8	9	....	17	Wooden stairway.
4160	4	13	11	6	4	35	Stairways at each end of mill.
4161	....	....	....	....	....	57	Two stairways, one at each end of mill; partitioned off.
4163	3	15	18	16	....	49	Outside stairway.
4164	5	18	15	29	30	101	Fifth floor, nine persons. Four foot stairway at each end of mill.
3722	2	19	....	....	....	19	
4167	2	1	3	....	....	4	
4169	2	7	9	....	....	16	Stairways at each end.
4170	2	20	19	....	....	39	Doorways, three places.
4171	3	....	18	....	....	18	Two stairways, (wooden,) one at each end of mill.
4173	2	20	5	....	....	25	Two stairways.
4176	5	15	4	13	16	60	Fifth floor, twelve persons. Brick stairway, and fire escape in process of erection.
4178	2	8	12	....	....	20	One stairway from second story; three outlets from first story.
4179	4	....	....	....	....	85	Outside stairway.
4180	1	32	....	....	....	32	Six doors and the windows.
4175	3	5	....	....	....	....	Doors.
4182	2	17	15	....	....	32	First floor. door at each end of mill; second floor, one stairway to first floor; also iron bridge connecting with store-house.
4183	4	36	15	16	12	79	Stairway at front, built in stone easement; also iron ladder at back, with landings at each story.
4184	3	12	11	5	....	28	Outside stairway.
4185	4	....	....	....	....	45	Fire escape.
4186	4	12	35	....	3	50	Elevator on outside of building, inside elevator, and brick and iron stairway outside of building.

MEANS OF ESCAPE—Continued.

Office number of mill.	LOCATION OF MILL AND CLASS OF GOODS MANUFACTURED.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	MEANS OF ESCAPE IN CASE OF FIRE OR PANIC.
	Philadelphia county.							
4187	Yarns,	5	16	7			23	Outside stairway, (brick.)
4193		3			31		31	Stairway outside and bridge connecting with a two-story building.
4194		2	10	17			27	
4195		2	10	6			16	
4197		3	5				5	Wooden stairway.
4198		3	17	17	26		60	Outside brick stairway and ladder.
4200		5	9	9	18		36	Iron escape outside.
4203		3	3	1			4	Doors.
4204		5	16		18		34	Stairs at end of mill; iron fire escape midway of mill with hand-rail.
4205		4	23				23	Outside stairway. Fire escape on the front of building.
4206		3	2	6	5	3	16	Outside stairway.
4208		4	182	192	20	17	411	Are sufficient, mills being mainly one story. The four-story mill has a permanent fire escape.
4210		2	20				20	Rear and front exit.
4211		2		18			18	One outside stairway at one end of mill, and one inside stairway at the other end.
4214		5					14	
4215		3	11	26			37	Inside stairway at each end of mill and door in each gable.
4218		3					11	Door and stairway in every room at each end of mill.
4219		3	7	10	4		21	
4220		2	30					
4221			46	28			74	One mill two stories, one mill three stories high. Stairway at each end of both mills.
4181		5			19	13	32	Iron staircases.
4158		3	3	16	14		33	Front and back stairway.
	Bucks county.							
4223	Hosiery and knit goods,	2	60	275			335	Two outside stairways from main building with bridge to adjoining stone building, with outside and inside stairways; also have a number of ladders.
	Delaware county.							
4224	Hosiery and knit goods,	3	15	58	16		89	Outside ladders and stairs of wood.

	Luzerne county.						
4225	Hosiery and knit goods,	4	5	86	13	2	106
	Philadelphia county.						
4226	Hosiery and knit goods,	4	30	40	60	40	170
4228		3					195
4230		3	13	15	10		38
4231		2	46				46
4233		4	55	28	37	39	159
4236		3		16	11		27
4238		3	4	4	6		14
4239		2	4	13			17
4240		4			10	22	32
4244		3			39		39
4245		3	36	38	78		152
4246					201		201
4247		2	2				2
4248		5					263
4253		3	6	2			8
4254		3					491
4255		3	4	20	38		62
4258		2		12			12
4259		3	75				75
4260		2	3	13			16
4262		4					206
4263		3	34	75	51		185
4264		3	13	13			26
4269		3	10	34	29		73
4271		3	12	9			21
4272		3		120			120
4274		4	36	60	214	145	455
4275		2	9	15			24
4276		2	4	16			20
4277		2	9	9			18
4278		3	80	65	30		175
4281		2	5	5			10
4282		2	5				5
4284		1	10				10
4273					104		104
4288		3	16				16
4289		3		50	42		92
4294		4					182
4292		1	12				12
4295		3	5	7	14		26
4298		3	1	40	62		103
4261				133			133
4299		3	16		74		90
4300		3	236	20	25		281
4301		2	3	6			9
4303		3	4				4

106	Inside stairs only, but are now putting up fire escapes on outside of mill from each story.
170	Fire-proof stairway, (stone and brick.)
195	Three iron fire escapes. Hands work in seven buildings.
38	
46	Six doors.
159	Iron winding stairs, inclosed in brick walls.
27	Wooden stairways.
14	Outside and inside stairways.
17	Hatchway on second floor. Stairway and four different doors on first floor.
32	Wide stairway and surrounding buildings. Second and third stories occupied by hosiery department.
39	Third floor occupied. Stairway.
152	Doors at each end of mill with stairway outside, from second story.
201	Occupy third story and basement. Stairway at each end.
2	Outside stairway.
263	Outside ladders.
8	Three.
491	Wooden stairways inside, iron fire escapes on outside.
62	Three doors.
12	Stairway. Burned out November 4, 1881.
75	Use first floor only.
16	
206	Two stairways.
185	Basement, twenty-five persons. Brick tower outside of mill containing stairway.
26	One broad stairway from second story. Two doors on first floor.
73	Stairs, elevator, fire escape in progress.
21	Front and back.
120	
455	Two brick-encased iron stairways, communicating with different floors by sheet-iron covered doors.
24	Two inside stairways and one outside stairway.
20	Front and back stairways.
18	Stairway four feet wide.
175	
10	Stairways.
5	
10	
104	Occupy third floor. Ordinary stairway and outside fire escape.
16	
92	Wooden stairway.
182	One fire escape; one outside and two inside stairways.
12	Two doors.
26	Ordinary stairway.
103	
133	Second floor occupied. Outside stairway.
90	Wooden ladder about being replaced by outside fire escape.
281	Outside stone stairway, with fire-proof doors, opening outward.
9	
4	Outside stairway.

MEANS OF ESCAPE .Continued.

Office number of mill.	LOCATION OF MILL AND CLASS OF GOODS MANUFACTURED.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	MEANS OF ESCAPE IN CASE OF FIRE OR PANIC.
	Philadelphia—Continued.							
4304	Hosiery and knit goods,	2	3	7			10	
4305		3	20	41	12		73	One wide stairway all the way up, and making arrangements for an escape outside.
4306		2	15				15	Do not need any; all work on first floor.
4307		2					10	
4309		2	14	7			21	Inside stairway.
4312		2	8	20			28	
4313		3			8		8	Private house; inside and outside stairways.
4314		4				70	70	Outside fire escape. Occupy fourth floor.
4316		3			37		37	Occupy third floor. None at present; understand one outside fire escape to be put up immediately.
4319		3			56		56	Occupy third floor. Outside stairway.
4320		4	62	123	40	46	271	Two wooden stairways; one enclosed iron stairway; three iron bridges, (one at each floor,) connecting with adjoining mill, (in course of construction.)
4321		3	25	35	8		68	One fire escape just finished; two inside stairways, one at each end of mill.
4323		2	12				12	
4325			182	184	198		593	No. 1 mill, three stories and basement; No. 2 mill, two stories and basement. Basement, twenty-nine persons. No. 1 mill, outside stairway, leading from third story on to roof of one and one half story office. No. 2 mill, inside stairway, six feet wide; No. 1 mill, stairway five feet three inches wide.
4329							375	Ladders on both sides of mill; fire-proof stairway.
4330		2	7	2			9	Ordinary stairway.
4332		5	75	150	119	10	450	Fifth floor, ninety-six persons. Iron fire escape outside, and brick stairway built out from mill; doors covered with sheet-iron.
4333		2		2			2	
4335		2	13	13			26	Outside stairway.
4338		4	100	50	198	202	550	Leonard fire escape; outside iron ladders and platforms on each story.
4339		3	11	8	8		27	
4340		4	5	9	30	40	84	Fire escape and broad stairway.
4342		3	14	7			21	Stairway.

4343				50		50	Front and back entrance.
4075	3	9				9	
4345	4	29	77	28	61	213	Basement, eighteen persons. Outside stairway, and outside iron fire escape now in course of erection.
4347	4	35	85	80	43	265	Basement, twenty-two persons. Brick inclosed stairway built on outside of the mill.
4349	3	20	10	26		56	Main stairway.
4352	3	30	30	4		64	Two stairways on each floor.
4353	3	12	20			32	Two stairways.
4354	2	55	35				Basement, fifteen persons. Two elevators and three doorways.
4355	2	9	7			16	Large doors front and back.
4356	1	39				39	Two doors, fourteen windows.
4357	5		115			115	Occupy second floor. One inclosed stairway, one inclosed elevator, two outside fire escapes.
4359	4					46	Occupy fourth floor. One stairway (width three feet) inside of building, and only exit from fourth floor.
4249	2	18				18	Occupy first floor.
4286	3					104	Inside stairway front, and outside stairway in rear.
4293	5	25	43	112	75	300	Fifth floor, fourty-five persons.
	Lackawanna county.						
4391	Silk and silk mixed goods,	4	65	18	64	27	174	Stairs at each end of every floor.
	Lehigh county.						
4386	Silk and silk mixed goods,	4	100	100	100	50	350	Outside stair tower.
	Philadelphia county.						
4387	Silk and silk mixed goods,	4	22	27	18	8	75	Outside fire escape to every story.
4388		3	10	6	5		21	
4389		3	23	28	24		75	
4390		3		10	5		15	
4393		4			12	5	17	Front and back.
4395		3	42					Occupy first floor. Outside stairway, brick walls on all sides.
4397		3		75	61		136	Very broad and straight stairways.
4398		3			9		9	Stairway.
4399		4		3		2	5	Entrance and exit at rear of building.
4400		5	175	100	400	125	800	Outside iron stairway, two outside iron fire-escapes.
4402		5		35	65	90	258	Fifth floor, 68 persons. No. 1 mill has iron stairway throughout, separated by 18-inch walls, communication by iron doors. No. 2 mill has outside iron fire-escapes connecting with each story.
4406		5	197	34	30	61	335	Fifth floor, 13 persons, by two stairways, each five feet wide. The main stairway constructed entirely of stone and iron, surrounded on all sides by brick walls, the doors encased in iron, leading from each room to it.
4410		4	95	55	40	10	200	An iron fire-escape outside on each end of the building.
4411		3			33		33	Stairway five feet wide.
4413		5		60	150	65	325	Fifth floor, 50 persons. One entrance in front and one on side of building. About erecting a fire-escape.
4414		3				18	18	Stairways.
4415		6	12	65	20	15	112	Inside stairs and outside fire-escape.
4417		3	30	10	20		60	Double stairway easy of access.
4418		3		6	6		12	Stairway at each end of building.
4420		1	4				4	
4423		2	11	9			20	

MEANS OF ESCAPE—Continued.

Office number of mill.	Location of Mill and Class of Goods manufactured.	Number of stories of mill in height.	Number employed on first floor.	Number employed on second floor.	Number employed on third floor.	Number employed on fourth floor.	Whole number employed.	Means of Escape in Case of Fire or Panic.
	Philadelphia—Continued.							
4424		3	. . . .	. . . .	4	. . . .	4	
4385		4	80	70	34	84	291	Basement, 23. Fire-proof stairway disconnected from building by iron doors and stairway through all rooms. Jumping cloths.
4427		5	. . . .	. . . .	104	. . . .	104	Occupy third floor. Outside stairway and communication from one mill to the other.
4431		3	. . . .	. . . .	10	. . .	10	Ordinary stairway.
4432		4	15	15	15	15	60	Stairway.
4433		3	7	36	9	. . . .	52	Stairway.
4394		5	10	60	50	50	202	Fifth floor, 32 persons. One fire-escape and open stairway.
	Wayne county.							
4434	Silk and silk mixed goods,	5	20	100	100	150	370	Fire-escape from each room.
	Berks county.							
4363	Wool hats,	3	53	95	2	. . . .	150	Two stairways on second floor, one inside and one outside; inside stairway from third floor.
4364		4	17	25	45	2	89	Two stairways at each end of mill.
4366		4	4	7	12	. . . .	23	Each story has a door leading to the outside.
4367		3	30	39	1	. . . .	70	Stairways from three different parts of the factory leading to the ground.
4368		2	19	16	. . . .	. . . .	35	One outside stairway at the south end of mill, and one inside stairway at north end.
4369		3	30	40	2	. . . .	72	Stairways or by elevator.
4370		3	35	46	7	. . . .	88	Two stairways.
4372		3	21	44	2	. . . .	67	Three stairways.
4373		3	4	5	15	. . . .	24	A door leading to the outside of each story.
4376		2	12	14	. . . .	. . . .	26	Stairway back and front.
	Lancaster county.							
4381	Wool hats,	2	12	6	. . . .	. . . .	18	
	Philadelphia county.							
4383	Wool hats,	5	98	260	85	158	702	Fifth floor, 101 persons. Three stairways; one at each end of building, and one in center. Two elevators.

MISCELLANEOUS INDUSTRIES.

AN EXHIBIT *of the production, number employed, &c., of various industries, compiled from returns of manufacturers to the Bureau, for the year ending December 31, 1881.*

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED.
Agricultural Implements.							
Agricultural steel and irons,	Pennsylvania Drop Forging Co ,	Allegheny,	265	60	$19 000 00		1,000 tons.
Agricultural steel and irons,	Nellis, Shriver & Co.,	Allegheny,	300	50	30,000 00	$100,000 00	
Agricultural steel and irons,	Breed & Edwards,	Allegheny,		55			
Agricultural steel, plows, and plow castings,	A. Speer & Sons,	Allegheny.					
Agricultural machinery, mill work, and steam engines,	Hulshizer & Larzelere,	Bucks,	312	42	24.000 00	75.000 00	
Engines, separators, boilers, saw-mills, &c.,	Geiser Manufacturing Company,	Franklin,	308	310	98 478 89	462 631 28	
Agricultural implements,	Buch & Helsey,	Lancaster,	312	10	2, 885 00	8 500 00	
Agricultural implements,	J. H. Albright,	Union,	312	4	850 00	5.900 00	
Agricultural implements and machinery,	A. B. Farquhar,	York,	312	400	150,000 00	600.000 00	
Agricultural implements,	S. & J. Randolph,	York,	280	3	250 00		
Mowing machines,	Eureka Mower Company,	Bradford,	250	45	28,000 00	75 000 00	
Air Brakes.							
Air brakes for passenger and freight cars,	Westinghouse Air Brake Company,	Allegheny,	300	350	451,367 25	1 384,086 13	
Augers and Bits.							
Augers and bits,	Job T. Pugh,	Philadelphia,	313	25		24,000 00	
Axes.							
Axes,	J. Fearon Mann,	Centre,	266	50	19.754 17		69,236 axes.
Axes,	Reuben Loveland,	Clinton,	290	40	14,130 00	42,375 00	
Axles.							
Axles and heavy forgings,	Long & Co.,	Allegheny,	250	65	22,500 00		2,500 net tons.
Axles,	Pittsburgh Forge and Iron Co.,	Allegheny,	274	60	28 433 18		10,017,201 pounds.
Axles,	Atglen Axle and Iron Manufacturing Company, (limited,)	Chester,	60	27	1,400 00		75 tons car axles.

MISCELLANEOUS INDUSTRIES—Continued.

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR.	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED.
Barrels.							
Barrels, (slack,)	Arthur Parslow,	Allegheny,	270	4	$2,000 00		30 000 barrels.
Barrels and white lead kegs,	Allegheny County Work-House,	Allegheny,	270	198			125,000 oil barrels, 137 221 kegs.
Barrels and kegs,	McKeever & Bros.,	Allegheny,	300	35	12,000 00		15,000 barrels, 200,000 kegs.
White lead kegs and casks,	M. T. & S. Kennedy,	Beaver,	300	100		$80,000 00	
Belting.							
Belting,	Stevenson & Faweett,	Philadelphia,	230	6	2,700 00	25,000 00	
Belting,	David Danforth,	Philadelphia,	310	5	4,309 00	40,000 00	
Blacking.							
Blacking, (shoe,)	James S. Mason Company,	Philadelphia,	300	80	19,000 00		75,000 gross.
Boiler Works.							
Boilers, tanks, &c.,	Bauman & Co.,	Allegheny,	300	8	4,000 00	7,064 57	
Boilers, stacks, &c.,	Cole & Heilman,	Lehigh,	312	110	37,309 19	130,509 60	
Boilers, tanks, stacks, &c.,	Satter Bros.,	Montgomery,	302	43	22,000 00	50,000 00	
Boilers and general machinery,	I. P. Morris Company,	Philadelphia,	310	417	233,335 36		19 tons brass castings, 2,194 tons iron castings.
Boilers, (Harrison,) castings of iron, &c.,	Joseph S. Lovering Wharton,	Philadelphia,	292	37	34,397 00	100 000 00	
Boilers,	Ambrose Gilman,	Philadelphia,	306	23	9,392 27	26,929 61	
Boilers, tanks, plate-iron work, &c.,	I. N. Wilfong, junior,	Philadelphia,	305	11	4 500 00	11,000 00	
Book Binding.							
Book binding and printing,	J. B. Lippincott & Co.,	Philadelphia,	308	314	156,464 00	400,000 00	
Bolts.							
Bolts, nuts, and washers,	Standard Nut Company,	Allegheny,	300	105	53,000 00		3,250 net tons.
Bolts, nuts, vises, and heavy hardware,	Gillespie Bros. & Co.,	Allegheny,	300	162	75,000 00		1,750 tons.
Bolts, (carriage,)	Welsh & Lea,	Philadelphia,	300	164	53,586 00	150,320 00	
Bolts, nuts, bridges, roof trusses, &c.,	L. Sykes & Son,	Philadelphia,	300	22	8,456 40	30,000 00	
Bolts, nuts, washers, rivets, and lag screws,	Hoopes & Townsend,	Philadelphia,	311	475	186,841 12	1,271,120 00	
Bolts, (barge,)	Townsend, Wilson & Hubbard,	Philadelphia,	300	90	34 000 00	150 000 00	
Bolts, railroad and mining spikes, nuts, &c.,	George D. Roseberry, (Supt.,)	Schuylkill,	308	33	11,480 50	110,865 75	1,317 tons.
Boots and Shoes.							
Boots and shoes,	Christian Ortman,	Allegheny,	286	6	3,000 00	8,000 00	
Boots and shoes, men's,	L. Kredel,	Allegheny,	310	16	4,000 00	16 500 00	

Boots and shoes,	W. H. Jack & Son,	Armstrong,	300	2	600 00	1 000 00	
Boots and shoes,	A. B. Walp & Sons,	Bucks,	230	62	14,227 88	60,135 58	
Boots and shoes,	Jonas D. Moyer.	Bucks,	312	11	2,000 00	8,500 00	
Boots and shoes.	A. J. Bean, agent,	Bucks,	312	5	798 60	3,836 88	
Boots and shoes, ladies', misses', and children's,	G. W. Neidich & Co..	Cumberland,	288	58	19 000 00	65,000 00	
Boots and shoes, ladies', misses', and children's,	Forney & Brother,	Dauphin,	260	61	18,000 00	65 000 00	
Boots and shoes,	William Berryhill,	Greene,	300	1	450 00	1 000 00	
Boots and shoes, children's.	Roney & Berger,	Lehigh,	275	11	4 300 00	9,000 00	
Boots and shoes, men's coarse and fine, pegged and sewed,	J. E. Dayton & Co..	Lycoming,	275	30	12 000 00	40 000 00	
Boots and shoes, men's, women's, and children's,	F. K. Walt,	Montgomery,	280	20	1,250 00		7,000 pairs.
Boots and shoes,	Watsontown Boot and Shoe Co.,	Northumberland,	145	15	1,600 00	7,500 00	
Boots and shoes, misses' and children's,	A. S.	Philadelphia,	250	5	2,000 00		4,500 pairs.
Boots and shoes, women's, misses', children's, and infant's,	Marvin,	Philadelphia,	290	53	29,290 00	75,000 00	
Boots and shoes, ladies', misses', and children's,	merican Shoe Company,	Philadelphia,	130	9	900 00		7,000 pairs.
Boots and shoes, ladies', misses', and children's,	Arnold & Markley,	Philadelphia,	308	65	29,000 00	70,000 00	
Boots, shoes, and gaiters, (hand sewed,)	Martin Bellows,	Philadelphia,	300	20	3,000 00	10,000 00	
Boots and shoes, ladies', misses', and children's,	George Billger,	Philadelphia,	208	9	3,242 85	8,450 00	
Boots and shoes, men's,	Waldo M. Claflin,	Philadelphia,	300	33	22,650 00	45,000 00	
Boots and shoes, ladies', misses', and children's,	P. Coleman,	Philadelphia,	265	33	14,000 00	43,500 00	
Boots and shoes, ladies',	Copestick & Robinson,	Philadelphia,	240	22	2,807 65	9,600 00	
Boots and shoes, men's and boys',	James Cotter & Sons,	Philadelphia,	300	45	6,000 00		20,000 pairs.
Boots and shoes, ladies', misses', and children,	Croxton, Wood & Co.,	Philadelphia,	295	75	24 000 00	100,000 00	
Boots and shoes, men's, boys', and youths',	Thomas Early,	Philadelphia,	298	6	2,086 00		3,744 pairs.
Boots and shoes,	M. Elkins & Co.,	Philadelphia,	300	100	50,000 00		58,000 pairs.
Boots and shoes, men's,	Henry Faytor, agent,	Philadelphia,	308	34	16 000 00		15,000 pairs.
Boots and shoes, (shoe stock,)	Hansell & Hall,	Philadelphia,	250	15	1,300 00	15,000 00	
Boots and shoes, men's and boys' brogans,	Harmer & Deal,	Philadelphia,	309	4	1,872 00		8,000 pairs
Boots and shoes,	Kelley, Moore & Evans,	Philadelphia,	300	150	50,000 00	160,000 00	
Boots and shoes, ladies', misses', and children's,	A. Knapp & Co.,	Philadelphia,	300	44	18,500 00	57,000 00	
Boots and shoes, men's and boys',	Richard Longbottom,	Philadelphia,	300	4			1,500 pairs.
Boots and shoes, children's and infant's,	Frederick Mahler,	Philadelphia,	300			900 00	
Boots and shoes, ladies', misses', and children's,	Samuel B. Fleming,	Philadelphia,	200	21	7,458 51		1,477 pairs.
Boots and shoes, children's,	Ludwig Maybaum,	Philadelphia,	305	40	18,300 00	50,000 00	
Boots and shoes, ladies', misses', and children's,	G. Miller & Co.,	Philadelphia,	280	32	14,000 00		20,000 pairs.
Boots and shoes,	Nelson & Shepley,	Philadelphia,	300	30	15,750 00	25,000 00	
Boots and shoes, ladies' misses', and children's,	R. Newmayer,	Philadelphia,	325	75	30,000 00		50,000 pairs.
Boots and shoes, ladies', misses', and children's,	George W. Orr & Co.,	Philadelphia,	250	27	7,500 00	26,000 00	14,000 pairs.

MISCELLANEOUS INDUSTRIES - Continued.

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED.
Boots and Shoes—Continued.							
Boots and shoes, ladies', misses', and children's,	Frank H. Radey,	Philadelphia,	312	20	$8,300 00		13,000 pairs.
Boots and shoes,	John S. Ritter.	Philadelphia,	308	11	5,000 00	$12,000 00	
Boots and shoes,	Saller, Lewin & Co.,	Philadelphia,	288	500	190,000 00		364,673 pairs.
Boots and shoes, ladies', misses', and children's,	John Skeffington,	Philadelphia,	280	9	3,360 00		6,000 pairs.
Boots and shoes,	Smith & Buckley,	Philadelphia,	300	40	22,500 00	75,000 00	
Boots and shoes, ladies', misses', and children's,	W. T. Smith,	Philadelphia,	230	14	4,780 00		8,540 pairs.
Boots and shoes,	Moses Thistle,	Philadelphia,	300	3			1,248 pairs.
Boots and shoes, men's,	Samuel Tolman,	Philadelphia,	260	40	10,400 00	25,000 00	
Boots and shoes, ladies', misses', and children's,	Charles B. Webb,	Philadelphia,	350	13	7,721 00	23,400 00	11,500 pairs.
Boots and shoes,	Weylman & Woodman,	Philadelphia,	300	80	31,200 00	100,000 00	
Boots and shoes, ladies',	R. M. Williams,	Philadelphia,	300	9	3,850 00	10,000 00	
Boots and shoes,	Thomas R. Evans,	Philadelphia,	310	16	7,440 00	20,000 00	
Boots and shoes, ladies', misses', and children's,	J. Eisenhower,	Philadelphia,	308	6	2,172 04	5 250 00	
Boots and shoes,	Edward Mayer,	Philadelphia,	308	33	10,000 00	20,000 00	
Boots and shoes, (hand sewed,)	John C. Lawson,	Philadelphia,	313	10	5,121 72	11,888 46	
Boots and shoes, children's,	Davis Brothers,	Philadelphia,	300	57	18,900 00		40,000 pairs.
Boots and shoes, children's,	James Dunn,	Philadelphia,	305	8	3,660 00		15,600 pairs.
Boots and shoes, ladies' and children's,	W. H. G. Morrell,	Philadelphia,	310	10	3,650 00	6,700 00	
Boots and shoes, ladies', misses', and children's,	W. S. Reeve,	Philadelphia,	300	6	3 000 00		
Boots and shoes,	F. X. Selberlieh,	Philadelphia,	273	65	19,850 00	80,000 00	
Boots and shoes, (men's toilet slippers,)	William Stevenson,	Philadelphia,	300	2	900 00		1,500 pairs.
Boots and shoes, ladies' and children's,	J. F. Wagner & Co.,	Philadelphia,	310	70	32,448 88	125,915 97	
Boots and shoes, ladies', misses,' and children's,	Welch & Kelly,	Philadelphia,	306	21	6 811 12		20,000 pairs.
Boots and shoes, ladies', misses', children's, and infants',	Nahm Brothers,	Philadelphia,	285	37	15,204 00	40,563 12	
Boots and shoes, men's, ladies', misses', and children's,	Jacob Jaeoby,	Philadelphia,	300	45			25,500 pairs.
Boots and shoes, shoes and slippers,	Willis & Trask,	Philadelphia,	307	55	33,418 00		90,000 pairs.
Boots and shoes, women's, misses', and children's,	G. Blekley & Co.,	Schuylkill,		16	1 141 51		4,000 pairs.

Boots and shoes,	C. H. Shissler,	Schuylkill,		12		8,000 00	
Boots and shoes. Men's, boys', women's, children's, and infants',	Orwigsburg Shoe Manufacturing Co.	Schuylkill,	288	71	17,227 16	103,813 19	47,289 pairs.
Boots and shoe,,	Richard Jones,	Schuylkill,	268	5	1 876 00	4,000 00	
Boots and shoes,	George O. Derby & Son,	Tioga,		3	1 200 00	2 500 00	
Boots and shoes,	J. S. Margerum,	Washington,	300	4	1 550 00	2,500 00	
Boots and shoes, men's,	Whiteman & Denman,	Westmoreland,	276	29	8.036 60	28 000 00	
Boots and shoes,	G. F. Heathcote,	York,	280	20	5,493 00	21,971 78	
Boring Machines.							
Boring machines,	Phillips' Manufacturing Company,	Allegheny,	240	3	920 00		2,033 machines.
Boxes.							
Boxes and nail kegs,	Stoner, McClure & Co.,	Allegheny,	200	50			24,000 boxes, 150,000 nail kegs.
Boxes,	T. B. Rice,	Philadelphia,	300	18	9,500 00	60 000 00	
Boxes, paper,	Novelty Paper Box Company,	Philadelphia,	300	26	7.444 00	81 600 00	
Boxes, paper,	George W. Plumly & Son,	Philadelphia,	295	350	60.000 00	138,000 00	
Boxes, (segar,)	Thomas W. Marsden,	Schuylkill,	200	3	500 00	1 700 00	25,000 boxes.
Brass, Bronze, &c.							
Brass goods for steam,	Gray, Shook & Co.,	Allegheny,	306	36	17.000 00		25 tons.
Brass goods and sheet metal fenders,	H. Adler,	Allegheny,	150	7	1 900 00	9,000 00	
Brass castings and steam pumps,	Thompson, Epping & Carpenter,	Allegheny,	305		10 000 00		75 tons.
Brass and bronze castings and Babbitt metal,	G. W. & B. F. Greene & Co.,	Allegheny,	290	3	2,555 00		10 tons.
Brass goods and Babbitt metal,	Mansfield & Co., (Limited,)	Allegheny,	312	19	12 000 00	36,000 00	
Brass goods for steam, iron fittings,	A. W. Cadman & Co.,	Allegheny,	304	16	7.782 52		40.452 lbs.
Brass castings, gas fittings, syphon pump,	J. B. Sheriff Son & Co.,	Allegheny,	295	22	13 000 00		20 tons.
Brass, bronze, and bell trimmings,	Carbon Bronze Company, (Limited,)	Allegheny,	306	13	1 876 27		326,000 pounds.
Brass castings, steam engines, machinery of all kinds,	Miller, Printz & Co.,	Berks,	308	23	9 425 00		9 tons.
Brass work for water, gas, and steam,	James M. Everhart,	Lackawanna,	312	20	5 000 00		28,500 pounds.
Brass work, blast furnace, machinery, cocks, valve, &c.,	Taws & Hartman,	Philadelphia,	301	25	17,626 84		75,000 pounds.
Brass castings,	Paul S. Reeves,	Philadelphia,	313	29	11,996 00		1,000,000 pounds.
Phosphor-bronze ingots, castings, wire, &c.,	Phosphor-bronze Smelting Co., (Limited,)	Philadelphia,	309	26	15,250 00		1,300 tons.
Brass work and patent iron hydrant,	Edward Zwiebel,	Schuylkill,	234	3	1,000 00		1,750 pounds.
Brass goods, valves, cocks, &c.,	L. Adams,	Schuylkill,	310		155 00		3½ tons.
Bridges.							
Bridges, roofs, and general iron construction,	Townsend, Brown & Co.,	Allegheny,	307	66	19,675 00		1,396 tons.
Bridges, roofs, turntables, and constructive material,	C. J. Schultz,	Allegheny,	296	80	37,500 00		1,100 tons finished work, 100 tons repaired.
Bridges, Iron, steel, wooden, and combination, turntables, roofs, &c., &c.,	Keystone Bridge Company,	Allegheny,	313	502	267 424 36		11,210 tons finished work.
Bridges, turntables, &c.,	Kellogg & Maurice,	Bradford,	308	225	106,500 00		16 000,000 pounds.
Bridges and roofs,	Cofrode & Saylor,	Montgomery,	313	220	85,000 00		4,500 tons.
Bricks, Tile, &c							
Bricks, (fire) and fire clay shapes,	Harbison & Walker,	Allegheny,	300	150	60.000 00		7,525,000 brick.
Brick, fire, tile, &c.,	Scott & Anderson,	Allegheny,	300	80	30 000 00	70 000 00	
Brick, fire, and glasshouse pots,	Thomas Coffin & Co., limited,	Allegheny,	311	76	39,600 00	108,000 00	

MISCELLANEOUS INDUSTRIES—Continued.

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR.	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED.
Brick, fire, and clay,	James H. Welch & Brother,	Allegheny,	250	25	$9,000 00		1,250,000 brick, 50 tons of clay.
Brick, fire, and fire clay,	Pendleton, Brother & Co.,	Beaver,	256	25	6,500 00		
Brick, fire, tile, and furnace lining,	S. Barnes & Co.,	Beaver,	300	40	17,037 00		1 700 000 brick.
Brick, fire,	W. J. Jackson,	Centre,	240	51	1,949 47		1,030,000 brick.
Brick, fire, engine tile, &c.,	Clearfield Fire-Brick Company,	Clearfield,	372	68	29,699 64		2,000 000 fire-brick, 8,000 engine tile 200 tons ground clay.
Brick, fire,	Woodland Fire Brick Co., (Limited)	Clearfield,	243	175	61,274 98		3 724,740 brick.
Brick, fire,	Frederick Munro & Co.,	Clinton,	280	56	22,700 00		2 000,000 brick.
Brick, common, and pressed,	Andrew Stolz,	Crawford,	128	18	2,962 50		825,000 brick.
Brick, fire,	Harrisburg Fire Brick Works,	Dauphin,	300	24	12,240 00		1,500,000 brick.
Brick, fire, tile, &c.,	Bliss & Marshall,	Fayette,	310	35	13,500 00		3 000,000 brick.
Brick, fire,	Joseph Solsson & Son,	Fayette,	202	21	12,862 60		1,368,000 brick.
Brick, fire,	Joseph Downing,	Lehigh,	275	16	4,000 00		800,000 brick.
Bricks,	Diener & Sinemplle,	Lycoming,	120	11	1,775 00		600,000 brick.
Bricks,	Joseph J. Mahl,	Lycoming,	156	12	2 500 00		500,000 brick.
Bricks, common, pressed, and platform,	James E. Dingee,	Philadelphia,	164	77	19,500 00		7,500,000 brick.
Bricks, fire, blocks, and tile,	Henry K. Vandusen,	Philadelphia,	313	98	19,875 00	$75,000 00	
Bricks, fire,	Peter B. Mellck,	Philadelphia,	300	37	15,000 00	45,000 00	
Bricks,	Ja ,	Philadelphia,	280	140	37,051 53	98 500 00	
Bricks, fire, and clay retorts,	Borgner & O'Brien,	Philadelphia,	313	45	19,260 00	47,500 00	
Bricks,	Amos Dotterer,	Philadelphia,	182	120	49,423 95		10,803,000 brick.
Bricks,	Excelsior Brick and Stone Company	Philadelphia,	220	75	29,342 88		9,500,000 brick.
Bricks, fire, and stove linings,	Hyzer & Lewellen,	Philadelphia,	300	19	10,100 00	15,800 00	
Bricks, fire retorts, settings, blocks, tile, &c.,	John Newkumet's Estate,	Philadelphia,	309	31	16,210 00	45,500 00	
Bricks,	Young & Milnamow,	Philadelphia,	182	93	23 652 00		6,000,000 bricks.
Bricks,	Peerless Brick Company,	Philadelphia,	365	130	65,178 11	131,141 32	9,090,850 brick.
Britannia Works.							
Glassware tops and trimmings,	Lang & Lanster,	Allegheny,	300	25	13,000 00	33,000 00	
Canal Boat Building.							
Canal boats, building and repairing,	Pennsylvania Canal Company,	Columbia,	287	72	20,891 08	55,828 44	
Cars.							
Cars, freight,	G. M. & J. K. Lockard,	Columbia,	275	240	75,000 00	500,000 00	225 mine cars, 2,000 mine car wheels.
Cars, freight, and car-wheels,	Jackson & Woodin Manuf. Co.,	Columbia,	310	979	400,000 00	2,247,000 00	

Cars, freight,	F. Gardner & Sons,	Cumberland,	289	182	44,312 00	404,672 39	
Cars, freight, &c.,	Harrisburg Car Manufacturing Co.,	Dauphin,	308	787	260 492 81	1,983 434 82	
Cars, railway and mine,	Middletown Car Works,	Dauphin,	312	170	65 000 00	450,000 00	
Cars,	Erie Car Works, (Limited,)	Erie,	309	550	195,400 00	1.708.000 00	
Cars, repairs,	Delaware, Lackawanna and Western R. R. Co.,	Lackawanna,	307	703	277,360 37	1,252,524 00	
Cars, box, freight, coal, and gondola,	McKee & Fuller,	Lehigh,	329	541	145 879 81		2,900 cars.
Cars,	Michael Schall,	York,	300	115	37,500 00	300 000 00	
Carriages.							
Carriages, barouches, and buggies,	Thomas Scoles,	Allegheny,	308	15		13 500 00	
Carriages, wagons, &c.,	Gustavus A. Schnable,	Allegheny,	306	8	3,556 69	4 982 00	
Carriages, coaches, buggies, and wagons,	Peas & Kirk,	Allegheny,	300	9	4 000 00	7,000 00	
Carriages, wagons,	John C. Schafer, Jr., & Bro.,	Allegheny,	312	24		31,294 42	
Carriages, buggies, spring wagons, and sleighs	J. H. Condon,	Blair,	312	12	6 260 00	15.000 00	
Carriages and truck wagons,	M. A. Weiss,	Carbon,	266	5	1,886 60	6 300 00	
Carriages and platform wagons,	A. S. Crossley,	Columbia,	300	1	200 00	2,000 00	
Carriages,	Co-operative Carriage Company,	Cumberland,	300	8		4,000 00	
Carriages, buggies, and spring wagons,	Sherk & Hackman,	Cumberland,	312	12	2,645 00	15,000 00	
Carriages, buggies, wagons, and sleighs,	George Schroeder & Sons,	Cumberland,	300	22	9,000 00	25,000 00	
Carriages and wagons,	Boyer & Attick,	Dauphin,	300	14	9 600 00	18 000 00	
Carriages,	Hoverter,	Dauphin,	309	14	3 514 94	13.000 00	
Carriages and wagons,	Vance & Whiteside,	Dauphin,	312	11	5,000 00	8.500 00	
Carriages, buggies, sleighs, &c.,	A. Albright & Co.,	Northampton,	300	17	6,250 00	15,000 00	
Carriages,	William D. Gardner,	Philadelphia,	304	26	11.085 00	40 000 00	
Carriages, fine pleasure,	William D. Rogers,	Philadelphia,	311	119	79,792 45	184,677 45	
Carriages, pleasure,	D. M. Lane & Son,	Philadelphia,	306	45	26 000 00	60,000 00	
Carriages, spring wagons, and sleighs,	Schablein & Courtney,	Schuylkill,	300	10	4,200 00		
Carriages, buggies, sleighs, &c.,	Thomas Gutellus,	Union,	312	10	3,000 00	15,000 00	
Carriages, buggies, sleighs, &c.,	John Gutelius,	Union,		8		8,900 00	
Chains.							
Chains, (coil and cable)	Pittsburgh Chain Company,	Beaver,	287	45	13,712 00	58 000 00	
Chains, fan blowers, lock, and steam pump,	J. F. Stauffer,	Lancaster,	295	36	7,500 00		450 tons of chain, 1,200 machines, 2,000 dozen locks.
Chains,	Bradlee & Co.,	Philadelphia,	240	100	100,000 00	300,000 00	
Chemicals.							
Oil of vitriol and other acids, pearl alum, white lead, colors, and paints generally,	Harrison Bro. & Co.,	Philadelphia,	312	315		1,800,000 00	
Acetate of lime and wood alcohol,	Scott Chemical Company,	Wayne,	300	21	9,000 00		180 tons acetate, 240 barrels alchohol.
Copper.							
Copper, ingot,	Chemical Copper Company,	Chester,	122	17	3,914 70		80,000 pounds.
Copper and brass in all varieties,	C. G. Hussey & Co.,	Allegheny,	320	85	60,000 00		1.000 tons.
Copper, sheet, bolt, and copper bottoms,	Park, Scott & Co.,	Allegheny,	285	36	16,452 44		798,569 pounds.
Crucibles.							
Crucibles, (plumbago,)	Hussey & Co.,	Allegheny,	300	18	9,765 00	65,000 00	
Crucibles, black lead,	R. B. Seidel,	Philadelphia,	309	18	9,612 10	58 359 80	
Crucibles, plumbago,	Eagle Plumbago Co., (Limited,)	Philadelphia,	270	7	4,635 50		210 tons prepared plumbago.

MISCELLANEOUS INDUSTRIES—Continued.

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR.	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED.
Cups.							
Cups, valve, for oil wells,	Whittlesey & Jones,	Centre,	313	3	$1,408 50	$6,000 00	
Cutlery.							
Cutlery, table, pocket, and miscellaneous,	Beaver Falls Cutlery Company,	Beaver,	300	250	71,064 00	150,000 00	
Drills.							
Drills, Diamond Rock,	Pennsylvania Diamond Drill Co.,	Schuylkill,	312	29	15,945 88		
Dye Woods.							
Dye woods and dye wood extracts,	John M. Sharpless & Co.,	Delaware,	300	60	47,682 00		9,562 tons of dye woods; 2,458,033 pounds of extract logwood.
Elevators.							
Elevators and patent portable hoists,	Alfred Box & Co.,	Philadelphia,	312	25	2,600 00		
Fences.							
Fences, wire guards, fountains, &c.,	David Pettit & Co.,	Philadelphia,	307	21	10,500 00	52,000 00	
Files.							
Files,	G. & H. Barnett,	Philadelphia,	300	147	49,137 13	165 000 00	
Flexible Shafts.							
Flexible shafts and tools,	Stowe Flexible Shaft Co., (Limited,)	Philadelphia,	309	38	4,714 50	18.000 00	
Fly Nets.							
Fly nets, (leather,)	R. F. Wilson,	Northumberland,	270	22	13,500 00	53,000 00	
Forgings.							
Forgings, iron car hooks, &c.,	R. B. Seidel,	Berks,	310	15	4 200 00		420,000 pounds.
Forgings, general machine and marine,	Reading Iron Works,	Berks,	284	56	27,152 25		639 tons.
Frames.							
Frames, mirror and picture,	J. J. Gillespie & Co.,	Allegheny,	310	8	4,052 C0	11,000 00	
Furniture.							
Furniture, parlor,	D. W. Huntsman & Co.,	Allegheny,	305	9	6.821 00	20,800 00	
Furniture,	A. Renvers & Co.,	Allegheny,		16		16,492 42	

Furniture and chairs, (school,)	G. Freeborn & Son,	Allegheny,	300	15	10,000 00	30,000 00	
Furniture, parlor,	T. Rolier, agent,	Allegheny,	300	10	6,000 00	25,060 00	
Furniture, bedsteads, bureau, chamber sets, &c.,	M. Seibert & Co.,	Allegheny,	300	194	94,309 40	225,000 00	
Furniture,	William Guckert & Co,	Allegheny,	250	20	10,000 00	27,000 00	
Furniture,	Hall & Lyon,	Bradford,	300	75	22,000 00	100,000 00	
Furniture, chamber, dining-room, and kitchen	Middletown Furniture Manufacturing Company,	Dauphin,	303	63	20,503 66	56,034 37	
Furniture, chamber,	Hare & Co.,	Erie,	280	90	40,000 00	60,000 00	
Furniture, cabinet,	H. Sierer & Co.,	Franklin,	308	35	10,000 00	25,000 00	
Furniture,	Philip Brown,	Huntingdon,	225	5	1,700 00	3,800 00	
Furniture, art,	R. W. P. Goff,	Philadelphia,	275	90	40,000 00	90,000 00	
Furniture and chairs,	John I Hall,	Philadelphia,	300	62	28,000 00	50,000 00	
Furniture, chairs, and children's carriages,	Erie Chair Company,	Erie,	280	18	8,000 00		30,000.
Furniture, chairs, wood seat,	J. J. Shermer & Co.,	Philadelphia,	308	7	2,070 00	7,373 02	
Furniture, chairs,	Cheshire Chair Company,	Philadelphia,	308	11	6,842 00	54,534 66	
Furniture, Windsor chairs,	James Boggs,	Philadelphia,	300	8	3,600 00		1,700 dozen of chairs, &c.
Furniture, chairs.	I. H. Wisler's Son,	Philadelphia,	300	5	2,460 00	25,000 00	
Furniture, chairs and sofa frames,	E. Huth,	Philadelphia,	300	2	600 00	1,500 00	
Furniture, chairs,	Oliver Roop, agent,	Philadelphia,	313	4	1,872 00	4,000 00	
Furniture, chairs,	Striekley Brothers,	Susquehanna,	308	25	10,140 00	20,000 00	
Fusee.							
Fuses, safety,	Safety Fusee Company,	Erie,	225	16	7,200 00		17,500 packages.
Galvanic Works.							
Galvanizing,	Volta Galvanizing Co., (limited,)	Allegheny,		28	7,000 00		
Galvanizing, iron of all kinds,	Chase & Pearsall,	Philadelphia,	300	25			50,000.
Gas Machines.							
Gas machines,	Elkins Manufacturing and Gas Co,	Philadelphia,	300	50	20,000 00		50 machines.
Guns.							
Guns, firearms,	J. H. Johnston,	Allegheny,	308	13	8,000 00	15,000 00	
Guns, gun makers tools and repairs,	Edward K. Tryon, junior, & Co.,	Philadelphia,	313	2	1,040 00	1,600 00	
Hardware.							
Hardware, wrought iron,	McKinney Manufacturing Company,	Allegheny,	300	75	30,000 00	100,000 00	
Hardware, domestic and castings,	Jarvis and Adams,	Allegheny,	280	71	30,556 40	106,896 00	
Harness.							
Harness, saddlery,	Ernest Frey,	Allegheny,	305	12	7,615 00	20,000 00	
Harness, saddles and collars,	M. P. Smith,	Allegheny,		6		15,000 00	
Harness, saddles and collars,	Krome & Dunstrup,	Allegheny,	300	5	1,900 00	9,000 00	
Harness, saddlery, hardware, patent leather goods,	Gilliam Manufacturing Company,	Allegheny,	300	52	24,112 89	133,000 00	
Harness,	W. J. Fennerty,	Allegheny,	306	3	1,623 00	2,500 00	
Harness,	Hartman & Kost,	Allegheny,	308	4		10,000 00	
Harness, horse collars ad fly nets,	H. A. Sage & Co.,	Northampton,	300	25	10,231 14	25,000 00	
Harness, saddlery, &c.,	E. P. Moyer & Co.,	Philadelphia,	300	12	7,200 00	28,000 00	
Harness,	A. Sipp & Co.,	Philadelphia,	310	7	5,000 00	18,000 00	
Harness and saddlery,	William S. Hansell & Sons,	Philadelphia,	312	32		100,000 00	
Harness, horse collars,	Michael Kiehl,	Philadelphia,	312	13	10,203 24	28,500 00	

MISCELLANEOUS INNDUSTRIES—Continued.

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR.	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED.
Harness—Continued.							
Harness,	S. R. Phillips,	Philadelphia,	308	20	$14,691 85		
Harness,	Atkinson & Bair,	Philadelphia,	304	11	4,256 00	$10,000 00	
Harness and rlding saddles,	William F. Simes,	Philadelphia,	312	6	2 100 00	7 400 00	
Harness,	Thomas Moore & Son,	Venango,	300	2	650 00	2,500 00	
Hinges.							
Hinges, wrought iron,	McKinney Manufacturing Co.,	Allegheny,	310	80	24 000 00		
Hide Salters.							
Hide salters,	Jacob Stern & Sons,	Philadelphia,	308	10	5,300 00		
Iron Pipes and Tubes.							
Iron pipes, wrought,	Pennsylvania Tube Works,	Allegheny,	300	650	260,000 00	1,500,000 00	
Iron pipes, wrought,	Spang, Chalfant & Co.,	Allegheny,	280	200	175,000 00		10.000 tons.
Iron pipes and tubes, wrought welded,	Reading Iron Works,	Berks,	276	907	299 934 45		Flues, 3 692.06 ; pipe. 16,774 09 =20,466 tons, 15 cwt.
Iron pipes and tubes, wrought iron and steel,	American Tube and Iron Company,	Dauphin,	285	387	155 000 00		12.000 tons.
Iron pipes and tubes, wrought,	Chester Pipe and Tube Company,	Delaware,	200	134	36 733 76	350,000 00	4,000 tons.
Iron pipes and tubes, (lap welded wrought iron boiler tubes,)	Union Tube Works,	Lawrence,	250	55	15.869 07		750 000 feet.
Iron pipes, gas and water, (cast,)	H. H. Fisher,	Lehigh,	185	26	6,500 00		1,200 tons.
Iron pipes, wrought,	James Hooven & Sons,	Montgomery,	300	34	15 671 30	136,926 43	
Kid.							
Kid, glove, sheep, and calf,	Winter & Goetz,	Berks,	300	30	10.892 71		52.000 doz. of calf, sheep & goat.
Kid, calf,	Alvin Hammer,	Philadelphia,	312	23	16.744 00	78,000 00	
Kid, calf,	John Frank & Sons,	Philadelphia,	313	16	10,016 00		2,340 dozens.
Kid, calf,	Louis Schumann & Son,	Philadelphia,	312	60	37,000 00	226 000 00	
Kid, calf,	Charles Schumann,	Philadelphia,	300	18			2,496 dozens.
Kid, calf,	F. Schumann,	Philadelphia,	307	34	22,008 83		5,346 dozens.
Kid, calf.	Blume & Rieber,	Philadelphia,	313	39	16,499 15	98,945 84	
Kid, calf,	H. Degelow,	Philadelphia,	306	10	6.885 00		2,000 dozens.
Kid, calf,	Knipe & Herrmann,	Philadelphia,	313	65	51,324 00	245 700 50	110,200 skins.
Kid glove, and manufacturer of gloves,	William Hawkins,	Philadelphia,	313	11	6 414 00	12,000 00	
Lasts.							
Lasts, patterns, and dies,	New York Last, Pattern, and Die Company, (Limited,)	Philadelphia,	285	6	3,000 00	9,000 00	

Lasts,	Aaron Larer,	Philadelphia,	310	2	775 00	3,244 52	
Lasts, boottrees and shoetrees,	Jacob Foster,	Philadelphia,	310	3	1 760 00	3 115 60	
Lasts, boot and shoetrees,	T. Letchford,	Philadelphia,	300	2			2,000 pairs of lasts and trees.
Lasts,	M. Cottrell & Son,	Philadelphia,	300	5	2,000 00	5,000 00	
Lead Pipe.							
Lead pipe and sheet lead,	Tatham & Brothers,	Philadelphia,	300	20	15 000 00		4,690,000 pounds.
Leather Curriers.							
Curriers,	William W. Franklin,	Philadelphia,	305	4	2,080 00	32,000 00	
Curriers, grain, russet, and black,	Thomas G. Carey,	Philadelphia,	300	12	7,053 00	40,000 00	
Curriers, russet, sheep, and pulled wool,	Smith Brothers,	Wyoming,	300	12	4 000 00	38,550 00	
Lightning Rods.							
Lightning rods and fixtures,	Reyburn, Hunter & Co.,	Philadelphia,	260	65	22,000 00	340,000 00	
Locomotives.							
Locomotives, light,	H. K. Porter & Co.,	Allegheny,	308	229	103 578 20		665,326 pounds iron castings; 30,630 pounds brass castings.
Locomotives, stationary engines, and coal machinery,	Dickson Manufacturing Company,	Lackawanna,	308	632	353,338 57		3 912 tons iron castings; 45 tons brass castings.
Locomotives,	Burnham, Parry, Williams & Co.,	Philadelphia,	308	2,889	1,747 530 18		555 locomotives.
Locks and Safes.							
Locks, door and pad, scales and builders' hardware,	Jacobus & Nimick Manufacturing Company,	Allegheny,	275	240	83,785 14		
Locks, pad,	Fraim & Brother,	Lancaster,	250	14	5.000 00	16 000 00	
Marble.							
Marble and granite,	W. C. Brown,	Allegheny,	308	7	3,833 87	7 679 96	
Marble and granite, grave work, marble mantels, &c.,	Alexander Beggs,	Allegheny,	308	55	31,000 00	62.000 00	
Marble, granite monuments, tombs, headstones, &c.,	A. J. Harbaugh,	Allegheny,	300	18	10,500 00	20,165 83	
Marble and granite monuments, tombs, &c.,	Boyle & Co.,	Allegheny,		10		8,000 00	
Marble, blue,	Henderson Marble Company,	Montgomery,	200	16	5,500 00	10 000 00	
Marble,	John Baird & Sons,	Philadelphia,	302	32	16.830 24		
Marble, brownstone, and granite,	W. T. Jones,	Schuylkill,	312	8	2,900 00	9 800 00	
Mats and Russets.							
Mats, russets, and padskins,	Fred. Emrich,	Allegheny,	320	4	1,450 00		800 dozen.
Morocco.							
Morocco,	Bowman & Smith,	Philadelphia,	360	28	15,000 00	100,000 00	
Morocco,	William Clark,	Philadelphia,	300	37	25,000 00	120 000 00	
Morocco,	Cumings & Patterson,	Philadelphia,	300	150	64 000 00	491,571 98	
Morocco,	William Amer & Co,	Philadelphia,	311	52	26 038 26	133 474 56	
Morocco,	Hammond & Dwyer,	Philadelphia,	310	39	16,000 00	50,000 00	
Morocco,	William C. Gamble & Brother,	Philadelphia,	311	20	8,659 64	27,500 00	
Morocco,	Dungan, Hood & Co.,	Philadelphia,	310	105	49,987 39		24,800 dozen goat skins.
Morocco,	John R. Evans,	Philadelphia,	310	25	10,926 12	62 000 00	
Morocco,	Edward Evans,	Philadelphia,	308	15	6,000 00	28 000 00	2,846 dozen of skins.

MISCELLANEOUS INDUSTRIES—Continued.

Class of Goods or Articles Manufactured.	Name of Operator.	County.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of Articles Manufactured.
Morocco,	W. S. Felton & Co.,	Philadelphia,	302	50	$17 731 00		6 240 dozens.
Morocco,	G. Kindavater,	Philadelphia,	303	18	7 514 40	$45,450 00	
Morocco,	Adams & Keene,	Philadelphia,	301	50	45 229 00	250,000 00	
Morocco,	A. Elton & Co.,	Philadelphia,	115	50	10 716 14		50,004 goat skins.
Morocco,	John J. McConnell,	Philadelphia,	300	28	16 250 00		27,000 dozen goat skins.
Morocco,	McNeely & Co.,	Philadelphia,	308	136	69 339 47	300 000 00	
Morocco,	C. Bocklin,	Philadelphia,	308	50	29,000 00	95,000 00	
Molds.							
Molds and machinery,	P. Smith & Co.,	Allegheny,	305	18	12 680 74	20,305 67	
Molds, presses, and machinery for working glass,	Washington Beck,	Allegheny,	320	35	15,000 00	35 000 00	
Needles.							
Needles, Hosiery,	William Smith,	Chester,	250	21	3,000 00		28,500.
Oars.							
Oars,	Stewart & Atkin,	Crawford,	260	15	4 435 00		160,000 feet.
Oil Cloth.							
Oil cloth,	George W. Blabon & Co.,	Philadelphia,	302	295	85,543 95	400,000 00	
Oxide of Zinc.							
Oxide of zinc,	Lehigh Zinc and Iron Company, (Limited,)	Northampton,	180	114	24 000 00		2,500,000 pounds.
Paints.							
Paints and white lead,	T. H. Nevin & Co ,	Allegheny,	300	24	11,000 00		750 tons.
Paints, white and red lead, linseed oil, and oil meal,	Snydam, Lawrence & Co.,	Allegheny,	300	45	24,870 62	220,000 00	
Paints, white and red lead, litharge, and putty,	C. F. Wells & Co.,	Allegheny,	312	40	25 700 00	200,000 00	
Paints, iron oxide, &c.,	Atlas Paint Company,	Allegheny,	300	7			1,000 tons.
Paints, carbon black,	Carbon Black Company,	Butler,	125	6	3 000 00		25 000 pounds.
Paints, Prince metallic,	Prince Manufacturing Company,	Carbon,	300	35	37 530 00		3,000 tons.
Paints and fertilizers,	Allentown Manufacturing Company	Lehigh,	302	10	3 272 38		1,300 tons fertilizers, 25,000 gallons of paint.

Paints, white and red lead, litharge, orange mineral,	Wetherill & Brother,	Philadelphia,	308	35	16,000 00		1 200 tons.
Paints, varnishes, and stains,	Wolff, Randolph & Co.,	Philadelphia,	308	7	1,220 91	23,000 00	
Paints,	French, Richards & Co,	Philadelphia,	308	44			5 328,425 pounds.
Paints, white lead, acet. lead & wood alcohol,	Western White Lead Company,	Philadelphia,	310	68	25 958 58		1,123 492 lbs. white lead, 576 960 lbs. acet. lead. 16,689 gallons wood alcohol.
Paper.							
Paper, printing,	Reading Paper Company,	Berks,	272	27	5 585 00		537.956 pounds.
Paper, printing,	Morrison, Bare & Cass.,	Blair,	280	82	29 890 00		2 000,000 pounds.
Paper, print.	Morrison, Bare & Cass,	Blair,	252	75	26 536 26		2.854 229 pounds.
Paper, binders' and albums boards,	J. Fred. Shecder.	Chester,	308	11	2,600 00		265 tons.
Paper, book and newspaper, white and tints,	Megarge Brothers,	Chester,	300	26	11.000 00		360 tons.
Paper, straw boards,	J. C. McDonald,	Chester,	200	3	500 00		30 tons.
Paper, hardware and wrapping,	J. B. Brownell,	Chester.	300	14	4 200 00		30 000 pieces.
Paper, manilla,	Thomas French & Son,	Columbia,	182	5		12,000 00	
Paper, boards and wrapper,	Shryoek Brothers,	Cumberland,	300	22	7,500 00		6½ tons.
Paper, book.	W. A. & A. F. Mullen,	Cumberland,	312	35	8.700 00	75 000 00	470 tons.
Paper, writing,	Mount Holly Paper Company,	Cumberland,	308	167	45 383 15	218,275 18	
Paper, straw boards,	A. Witmer,	Cumberland,	245	10	2 400 00		300 tons.
Paper, manilla and brown,	Harry S. Garrett,	Delaware,	300	5			225 tons.
Paper,	C. S. Garrett,	Delaware,	312	100	40 000 00	275,000 00	2 400 tons.
Paper, manilla,	Cochran & Young,	Erie,	292	20			400 tons.
Paper, straw boards,	John W. Sutton & Bro.,	Indiana,	285	15	5,389 57		583 tons.
Paper, straw boards,	Hawhurst & Ray,	Indiana,	200	6	1.200 00		100 tons.
Paper and pulp,	American Wood Paper Company,	Montgomery,	278	130	57,000 00		4,000,000 lbs.
Paper, hanging,	Wilson & Fenimore,	Philadelphia,	260	41	9,711 29	65,611 89	
Paper, book,	Martin & William H. Nixon,	Philadelphia,	290	261	12,000 00		4,200 tons.
Paper, envelopes, folding, tags, collars, &c.,	W. E. & E. D. Lockwood,	Philadelphia,	308	125	40,000 00	200,000 00	
Planing Mills.							
Planing mill,	J. R. A. Stern & Co.,	Allegheny,	312	26	16,306 71		1,632,600 feet.
Planing mill,	B. Schmidt & Co.,	Allegheny,	283	16	8 000 00		713,000 feet.
Planing mill,	Osterling & Langenheim,	Allegheny,	312	17	9,000 00		500 000 feet.
Planing mill,	Grusch & Co..	Allegheny,	300	13	6,041 91		208,901 feet.
Planing mill,	Hill & Patterson,	Allegheny,	312	12	8.400 00	12,000 00	
Planing mill,	J. L. Campbell,	Allegheny,	312	9	7,000 00		400,000 feet.
Planing mill,	Trimble & Co.,	Allegheny,	300	25	17,000 00		1 117 000 feet.
Planing mill,	Kennedy & Sons,	Allegheny,	300	9	1,575 00		600,000 feet.
Planing mill,	Abdiel McClure,	Allegheny,	270	16	8,500 00		
Planing mill,	William M. Lewis,	Allegheny,	312	12	7,500 00	26,000 00	
Planing mill,	Hellman & Brother,	Armstrong,	288	16			2 336,000 feet.
Planing mill,	Walker Brothers,	Clearfield,	288	18	7 000 00		933.000 feet.
Planing mill,	H. W. Foretz,	Clearfield,	240	12	3,889 00		464 000 feet.
Planing mill,	Gossler & Co.,	Clinton,	312	22	9,880 00		2,200 000 feet.
Planing mill,	T. H. Edgar,	Columbia,	312	5			360,000 feet.
Planing mill,	W. B. Roekwell & Co.,	Lackawanna,	312	16	3,995 04		270 000 feet.
Planing mill,	Abington Mill Company,	Lackawanna,					169,253 feet.
Planing mill,	Samuel N. Leet & Co.,	Luzerne,		7			27,500 feet.
Planing mill,	Plymouth Planing-Mill Company,	Luzerne,	312	15	4 909 74		
Planing mill,	W. R. Packard,	Mercer,	270	11	2.400 00		1,350,000 feet.
Planing mill,	Charles K. Merkle & Co.,	Philadelphia,	207	30	16,400 00	60,000 00	

MISCELLANEOUS INDUSTRIES - Continued.

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR.	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED.
Plumbers' Materials.							
Plumbers' copper, cabinet, and cast iron ware,	C. A. Blessing,	Philadelphia,	350	75	$35,000 00	$200,000 00	
Powder.							
Powder, blasting and mining,	Moosic Powder Company,	Lackawanna,	150	70	35,973 75		157 533 kegs.
Powder, mining,	Laflin Powder Manufacturing Co.,	Luzerne,	270	14	7,111 73		71 392 kegs.
Powder, blasting,	E. I. du Pont de Nemours & Co.,	Luzerne,	300	43	27,000 00		3,000,000 pounds.
Powder, blasting,	C. W. Weitz & Co.,	Schuylkill,	287	52	24,055 00		90,000 kegs.
Printers.							
Printers,	Sherman & Co.,	Philadelphia,	308	141	60,000 00		
Pumps.							
Pumps, steam, valves, and fittings,	Wilson, Snyder & Co.,	Allegheny,	309	61	42,000 00	100,000 00	
Pumps, wooden,	William Reifel,	Erie,	300	5	2,400 00		
Pumps and pipe, wood,	A. B. Gunnison,	Erie,	300	4	1,950 00	13,142 44	
Pumps and pipes,	I. Tyler & Son,	Luzerne,	200	3	600 00	4,000 00	
Railing.							
Railing and general iron work,	Felix Reiling & Son,	Allegheny,	312	1	776 60	3,586 17	
Repairs.							
Repairs,	Pennsylvania Railroad Co., Philadelphia and Erie division.	Clinton,	305	945	412 346 14		1,444 tons of iron castings, 155 171 pounds of bronze castings, 43,701 pounds of brass castings.
Repairs,	Pennsylvania Railroad Co., Philadelphia and Erie division,	Erie,	305	291	168 177 26		
Repairs,	Pennsylvania Railroad Co., Philadelphia and Erie division,	Northumberland,	305	469	286 810 61		
Repairs,	Delaware, Lackawanna and Western Railroad Company,	Luzerne,	309	142	63,484 57		
Repairs,	Lehigh Valley Railroad Company,	Schuylkill,	308	233	99,000 00		
Rope.							
Rope, hemp, twine and cordage,	Henry Gerwig & Son,	Allegheny,	285	7	2,400 00	7,000 00	
Rope, packing and twine,	John Flocker & Co.,	Allegheny,	300	14	5,420 00		85 tons.

Rope, bags and twine,	John T. Bailey & Co.,	Philadelphia,	312	450	87,000 00	1,250 000 00	
Rope, jute and cordage,	Finley & Schlichter,	Philadelphia,	300	190	41,000 00		4,091,015 pounds.
Rope, cordage,	Edwin T. Fitler Company,	Philadelphia,	300	390	135,000 00	1,500,000 00	
Safes.							
Safes, fire and burglar-proof,	Farrel & Co.,	Philadelphia,	307	100	54,516 00	175,000 00	
Safes, fire and burglar proof,	Maiser Brothers,	Philadelphia,	307	10	4,900 00	10,000 00	
Saw-Works.							
Saws,	Emerson, Smith & Co.,	Beaver,	308	80	40,000 00	190,000 00	
Sash and Doors.							
Sash and doors,	J. B. Chambers & Brother,	Allegheny,	312	32	14,300 00		
Sash, doors, blinds, mouldings, and flooring,	Hipple & Wilson,	Clinton,	313	35	10,543 29	55,350 00	
Sash, doors, blinds, flooring, sidings, &c.,	Millen & King,	Cumberland,	275	10	2,860 00	15,000 00	
Sash, doors, frames, and blinds,	Craighead & Freeland,	Cumberland,	300	5	1,750 00	10,000 00	
Sash, doors, and bill lumber,	Mosser, Shoops & Sadler,	Cumberland,	300	58	15,000 00	60,000 00	
Sash blinds, &c.,	North-East Window Blind Co.,	Erie,	230	4		1,800 00	
Sash, doors, blinds, and mouldings,	H. D. Myers & Co.,	Erie,	234	4	1,520 50	2 933 98	
Sash, doors, frames, &c.,	Joseph Lochlaum,	Franklin,	225	10	3 122 00	8,000 00	
Sash, doors, flooring, and siding,	A. Mitchell,	Lackawanna,	300	3	1,500 00	3,500 00	
Sash, doors, blinds, flooring and siding,	Otto & Sons,	Lycoming,	190	80	21,524 18		15,000 doors, 12,000 sash, 28,000 blinds, 5,000,000 feet lumber.
Sash, doors, shutters, and blinds,	Guest & Longaker,	Montgomery,	300	12	4,000 00	10,000 00	
Sash, doors frames, shutters, &c ,	John Parker,	Philadelphia,	277	19	5,910 00	19 521 00	
Sash, doors, woodwork for buildings,	Mahlon Fulton,	Philadelphia,	305	52	32 349 55	75,889 08	
Sash, doors, frames, and blinds,	Gibson & Sickles,	Philadelphia,	348	30	16,083 43	40,906 27	
Sash, doors, &c.,	Shank & Walker,	Somerset,	250	6	1,000 00	3,500 00	
Sash, doors, flooring, &c.,	David Ross & Sons,	Somerset,	200	6	750 00	1,600 00	
Sash, doors, blinds, &c.,	Pattison Wood-Working Company,	Tioga,	312	12	4,200 00	11,000 00	
Screens.							
Screens,	G. L. Boyd, Agent,	Schuylkill,	150	2	1,200 00		
Shooks.							
Shooks,	Nash Brothers,	Crawford,	175	7	2,056 25		8,000 shooks.
Shovels.							
Shovels, spades, and scoops,	Payne, Pettebone & Son,	Luzerne,	300	30	12,000 00	36,000 00	
Shovels, spades, scoops and wagon tyres,	Lehigh Manufacturing Company,	Northampton,	200	18	4,790 00		4,000 dozen shovels, 100 wagon tyres.
Show Cases.							
Show cases,	T. McNulty & Co.,	Allegheny,	300	14	6,642 00	32,000 00	
Show cases,	James Irons,	Philadelphia,	308	9	5,475 00	19,000 00	
Show cases,	W. H. Grove,	Philadelphia,	308	15	5,000 00	15,000 00	
Skirting.							
Skirting,	John F. Eppelsheimer,	Philadelphia,		2	1,250 00	6,044 83	
Skirting,	H. & W. Rebert,	York,	300	2	360 00		1,600 sides.
Slate.							
Slate, roofing, flagging, &c.,	Locke Slate Company,	Lehigh,	275	45	13 886 23	20,000 00	
Slate, roofing, flagging, and posts,	Chester County Slate Company,	Northampton,	220	25	6,534 00		3,500 squares.

MISCELLANEOUS INDUSTRIES--Continued.

CLASS OF GOODS OR ARTICLES MANUFACTURED.	NAME OF OPERATOR.	COUNTY.	Number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	AMOUNT OF ARTICLES MANUFACTURED
Slate—Continued.							
Slate, roofing,	Chapman and New York Slate Manufacturing Company,	Northampton,	240	40	5,100 00	10,000 00	
Slate, roofing,	Bangor Central Slate Company,	Northampton,	288	20	5,500 00		974 squares of roofing; 91,200 of school slate.
Slate, roofing and school,	North Bangor Slate Manufac'ng Co.,	Northampton,	250	25	12,000 00		4,000 squares.
Slate mantels, heaters, ranges, &c.,	Charles Williams & Sons,	Philadelphia,	308	19	13,000 00	60,000 00	
Slate mantels, and other slate work,	Walters & Bradway,	Philadelphia,	261	16	9,500 00	25,000 00	
Smut Machines.							
Smut Brush Machine, Russell,	Calvin Gilbert,	Franklin,	300	9	2,400 00	6,000 00	
Spikes.							
Spikes and rivets,	S. Severance,	Allegheny,	300	22	13,000 00		2,000 tons.
Spokes.							
Spokes, carriage wheels, and materials,	Hoopes Brother & Darlington, (Limited,)	Chester,	312	100	40,000 00	150,000 00	
Spokes, wheels, and hubs,	Strahorn, Pierson & Co.,	Chester,	304	28	10,000 00		
Spokes, hubs, and wheels,	Eberly Brothers,	Cumberland,	306	33	8,000 00	18,000 00	
Spokes, handles,	Peterson & Poulson,	Erie,	300	5	2,000 00	4 500 00	
Spokes, hubs, and incline rollers,	Rush & Meeks,	Fayette,				5,000 00	
Spokes, wagon and carriage,	John Klaer,	Monroe,	300	12	2,550 00	10,000 00	
Spokes and hubs,	Klaer & Sonna,	Pike,	312	17	3,000 00	13,500 00	
Springs.							
Springs and gears for vehicles.	Dexter Spring Company,	Allegheny,	308	50	27,288 85	141,668 58	
Springs, eclipse, for cars and locomotives,	A. French & Co.,	Allegheny,	300	200	114 000 00		5 475 net tons.
Springs, torsion,	Erie Torsion Spring Company,	Erie,	300	2	1 500 00		22 tons.
Springs, railway,	Charles W. Pickering & Co.,	Philadelphia,	312	60	27,201 61	100,727 59	
Steam Bending Works.							
Steam bending-bent felloes, and bob runners,	H. G. Fink,	Erie,	300	22	12,000 00		46,000 set bent felloes; 1,400 set bob runners.
Steam Pumps.							
Steam pump, heaters, and fittings,	H. D. McKnight & Co.,	Allegheny,	300	18	13 000 00	30,000 00	
Terra Cotta.							
Terra Cotta stove and fire brick,	William Gee,	Luzerne,	308	3	1,300 00	3,000 00	

Terra Cotta ware,	A. Scharff & Brother,	Montgomery,	250	4	$1,500 00	$5 000 00	
Terra Cotta, pipes, chimney tops, and vases,	Sylvester Gillinger & Brother,	Montgomery,	240	9	4 000 00	7,929 92	
Terra Cotta drain and sewer pipe, chimney tops, flues, garden vases, and statuary,	William K. Black,	Philadelphia,	290	32	17 000 00	145,000 00	
Tools.							
Tools, solid steel railway track,	Metcalf, Paul & Co.,	Allegheny,	240	105	78,000 00	300 000 00	
Tools, butchers,	Bernard Hockler,	Allegheny,	312	8		16,000 00	
Tools, meat choppers, engines, &c.,	H. P. Rankin,	Allegheny,	312	21	5 715 26	30 000 00	
Tools, edge,	C. E. & A. P. Ogden,	Delaware,	.	15	7,250 00	16 698 59	
Toys.							
Toys, blocks, and games,	C. M. Crandall Company,	Susquehanna,	270	85	29 605 50		3,488 cases.
Wagons.							
Wagons, farm, truck, and spring,	Jonas Swab,	Dauphin,	308	10	2 225 00	8 000 00	
Wagons,	Abraham Metzger,	Lycoming,	308	4	1 721 50	5.000 00	
Wagons and feed cutters,	H. W. Garth,	Clinton,	300	5	1 836 00	3,600 00	
Wagons, carts, &c.,	H. & G. Kessler,	Philadelphia,	305	44	18 000 00	55,000 00	
Wagons, carts, &c.,	Wilson, Childs & Co.,	Philadelphia,	290	175	87,000 00	210,000 00	
Wheelbarrows.							
Wheel-barrows, steel, for mining, furnace, mill, and farm use,	Jackson Manufacturing Company,	Dauphin,	300	22	9 000 00	67,500 00	
Wire.							
Wire work,	C. Reiger,	Allegheny,	308	4	2,250 00	5,500 00	
Wire, iron and steel,	Stewart & Co.,	Northampton,	260	100	60,000 00		6.000 tons.
Wire cloth,	De Witt Wire Cloth Company,	Philadelphia,	308	14	8,624 00	7,000 00	Balance of our work being manufactured out the State.
Wire goods,	Strawbridge & Chase,	Philadelphia,	308	30	6.567 43	45,000 00	
Wire, square rod, and wire screens,	Alb. L. Laubenstein,	Schuylkill,	197	8	1 590 00	6,900 00	
Wooden Ware.							
Wooden ware, tubs, pails, &c.,	A. M. Kent & Co.,	Erie,	312	100	27 760 00	122 000 00	
Wooden ware, agricultural, broom handles, and dowell rods,	Wyman & Parsons,	Erie,	278	9	3 144 95	7,765 12	
Wooden ware, pails,	Howe, McClure & Co.,	Erie,	280	35	14,000 00	60,000 00	
Wooden ware, butter printer, and other articles,	B. R. Rapp,	Chester,	300	3	900 00		250 pieces.
Wooden ware, bowls,	Shorts, Fetterman & Co.,	Crawford,	200	3	900 00	4,000 00	
Wooden ware, palls, tubs, and lard packages,	H. W. Jamison,	Warren,	275	40	15 562 15	70.000 00	

RECAPITULATION.

Number of establishments to whom blanks were sent,		1,013
Number of establishments not reporting,	400	
Number of establishments not in operation,	132	
Number of establishments tabulated,	481	
		1,013
Average number of days in operation,		272
Number of persons employed.		34.272
Total amount paid in wages during the year,		$14,165,074 44
Average yearly earnings for each employee,		421 35

PENNSYLVANIA OIL FIELDS.

REPORT *of the Pennsylvania Oil Fields, by districts, for the year ended December 31, 1881, compiled from "Stowell's Petroleum Reporter."*

(A barrel of oil is uniformly forty-two gallons in the following compilation.)

Number and Name of Districts.	Production for the Year.		Well Account.				
	Total barrels.	Daily average barrels.	Number producing December 31, 1881.	Number drilling December 31, 1881.	Number completed during December, 1881.	Number of dry holes during December, 1881.	Number of new rigs building December 31, 1881.
1. Butler,	2,748,496	7,530	3,760	16	20	2	15
2. Parker,							
3. Clarion,	73,000	200	270	4	2	. . . . .	2
4. Scrubgrass,	72,145	198	350	6	5	1	3
5. Franklin,	25,550	70	30				
6. Reno,	70,000	192	345	2	1	. . . . .	1
7. Oil City,	54,750	150	200	1			
8. Rousville,	54,750	150	200	1	1		
9. Rynd Farm,	27,960	76	20				
10. Columbia,	25,550	70	40				
11. Petroleum Centre,	29,200	80	90	3	1	. . . . .	2
12. Shamburg,	98,550	270	600	5	3	1	6
13. Titusville,	27,375	75	70	3	3	. . . . .	3
14. Pithole,	36,500	100	150	3	3	. . . . .	2
15. Fagundas,	70,000	192	115	4	2	. . . . .	1
16. Tidionte,	220,795	605	205	1			
17. Warren,	22,945,069	62,863	11,230	205	169	3	197
18. Bradford,	73,000	200	150	12	20	2	8
19. Beaver,	681,509	1,867	475	202	177	3	193
20. Allegany,							
Total,	27,334,199	74,888	18,300	468	406	12	443

PRODUCTION.

Average daily production each month in the following years:

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . .	11,287	11,714	11,299	12,294	13,211	13,731	13,735	16,776	18,462	18,171	16,953	15,178	14,401
1871, . . .	13,497	13,306	12,914	12,866	13,187	13,678	14,725	15,922	15,398	15,653	15,487	15,418	14,254
1872, . . .	18,825	15,965	14,890	15,403	17,326	16,871	16,702	17,739	16,681	4,272	21,287	20,825	16,399
1873, . . .	20,407	21,725	21,461	21,384	25,044	26,449	27,983	30,198	31,809	30,403	33,049	31,980	27,074
1874, . . .	37,653	29,839	28,498	25,958	28,895	30,725	33,337	30,049	28,021	29,669	28,702	27,682	29,919
1875, . .	27,489	25,708	25,469	22,502	22,468	23,207	25,431	23,186	23,298	23,583	23,340	23,254	24,078
1876, . . .	22,975	23,065	23,167	23,383	23,721	24,120	24,633	25,533	26,020	26,102	26,216	25,390	21,527
1877, . . .	27,190	27,979	29,087	32,427	36,374	37,693	38,355	41,089	40,897	40,946	39,114	40,518	35,972
1878, . . .	38,816	39,102	38,980	39,863	40,802	40,575	41,415	43,288	43,857	44,187	44,965	42,538	41,532
1879, . .	44,191	43,515	48,365	51,015	54,062	55,855	56,057	61,042	61,890	59,238	57,046	57,076	54,087
1880, . . .	61,423	64,552	65,032	67,190	71,901	71,948	72,530	75,517	78,240	76,956	75,814	72,214	71,124
1881, . . .	72,390	68,326	73,369	73,526	77,203	79,262	76,538	75,217	73,111	74,941	75,561	80,000	74,954

SHIPMENTS.

Shipment of Crude, and Refined reduced to Crude equivalent, out of the producing region, in the following years:

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1870, .	360,933	312,910	354,400	390,003	407,908	418,516	410,707	516,679	542,217	557,624	519,780	444,254	5,235,931
1871, . . .	437,691	347,718	383,890	389,147	587,375	501,754	541,137	528,134	551,075	505,071	480,977	410,822	5,664,791
1872, . . .	476,966	407,606	276,220	428,512	510,417	529,228	591,238	621,954	541,607	607,468	477,945	430,786	5,899,947
1873, . . .	573,124	527,440	668,374	708,191	768,176	696,414	814,449	864,768	952,955	1,010,852	959,589	955,443	9,499,775
1874, . . .	843,663	501,220	518,246	803,409	899,027	815,413	940,281	793,865	1,014,570	543,341	546,117	602,348	8,821,500
1875, . .	435,095	327,776	693,918	729,581	681,679	745,386	904,537	882,089	1,109,392	871,917	671,066	871,902	8,942,938
1876, . . .	677,289	519,193	623,762	603,037	646,150	921,862	1,228,539	1,203,402	1,154,549	524,190	871,196	1,190,983	10,191,452
1877, . . .	743,461	484,904	913,919	903,526	1,234,324	1,391,124	1,096,951	1,425,943	1,563,797	1,268,971	1,205,634	600,019	12,832,573
1878, . . .	775,791	774,234	741,512	846,636	960,894	1,135,419	1,330,454	1,655,651	1,434,225	1,717,390	1,281,410	992,688	13,676,000
1879, . . .	663,998	702,729	973,879	1,136,188	1,331,469	1,369,314	1,625,035	1,808,239	1,627,120	1,662,269	1,453,645	1,532,585	15,886,170
1880, . . .	1,650,409	1,395,151	1,613,371	842,268	1,095,259	975,083	1,231,611	1,394,129	1,252,635	1,665,933	1,226,030	1,335,613	15,674,492
1881, . . .	1,061,617	915,028	1,276,746	1,348,398	1,563,436	1,729,697	1,925,532	2,214,877	2,131,950	2,08 . 167	2,066,906	1,969,581	20,284,235

STOCK.

Total stock of Crude in the Oil Producing Fields at the close of each month in the following years:

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . . .	340,154	342,390	351,474	328,609	329,908	351,168	321,840	356,908	419,477	473,896	576,014	554,626	395,539
1871, . . .	537,751	587,021	642,000	771,000	605,000	554,000	511,220	530,146	541,300	495,102	502,960	532,000	575,550
1872, . . .	532,971	579,793	662,497	877,832	950,803	1,010,302	990,229	997,166	951,410	914,423	886,909	1,084,423	869,896
1873, . .	1,183,728	1,265,373	1,244,657	1,178,643	1,192,541	1,324,493	1,433,620	1,513,890	1,521,185	1,452,777	1,493,875	1,625,157	1,369,161
1874, . . .	1,948,919	2,283,032	2,648,210	2,623,534	2,594,286	2,701,625	2,279,479	2,932,444	2,758,504	3,134,902	3,449,845	3,705,639	2,755,035
1875, . .	4,104,703	4,496,751	4,592,364	4,537,843	4,552,672	4,502,896	4,386,720	4,223,397	3,812,945	3,672,101	3,701,235	3,550,200	4,177,819
1876, . . .	3,585,143	3,734,835	3,829,250	3,900,703	3,989,904	3,791,642	3,326,726	3,304,405	2,930,456	3,040,108	2,955,092	2,824,739	3,434,417
1877, . . .	2,604,128	2,860,636	3,210,454	3,279,731	3,173,008	2,912,674	3,004,728	2,852,544	2,503,657	2,504,012	2,471,798	3,127,837	2,875,434
1878, . . .	3,555,342	3,875,964	4,342,832	4,692,090	4,996,058	5,078,189	5,031,600	4,717,877	4,599,362	4,221,769	4,209,300	4,615,299	4,501,308
1879, . . .	5,321,222	5,813,663	6,318,099	6,689,111	6,980,064	7,263,150	7,353,382	7,414,195	7,620,525	7,794,634	8,051,469	8,470,490	7,090,834
1880, . .	8,724,194	9,204,062	9,606,683	10,780,153	11,916,577	13,099,934	14,116,753	15,063,651	16,157,316	16,877,019	18,025,409	18,928,430	13,541,678
1881, . . .	20,110,903	21,108,003	22,105,789	22,963,171	23,793,028	24,441,191	24,888,337	25,005,187	25,066,657	25,309,361	25,509,285	26,019,704	23,860,051

DRILLING WELLS.

Number of Drilling Wells at the close of each month in the following years:

A. D.	January	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870. . . .	430	433	480	449	443	363	354	288	264	224	180	147	334
1871, .	140	173	240	279	356	303	329	330	439	486	477	394	329
1872, .	363	369	313	302	386	39.	359	392	301	311	354	318	342
1873, . .	361	349	227	177	228	395	340	267	197	163	137	60	233
1874, . . .	37	55	99	213	225	210	180	128	107	82	57	54	121
1875, . .	40	40	45	64	127	162	118	96	132	170	179	168	112
1876, . . .	142	151	230	267	307	340	353	374	511	565	618	493	362
1877. . . .	457	463	395	448	512	395	365	417	535	573	565	426	463
1878, . .	334	326	379	409	376	266	188	185	240	282	297	218	292
1879, . . .	265	323	406	468	460	384	329	258	270	313	372	440	357
1880, . .	540	535	577	580	460	440	452	515	491	469	475	408	495
1881, . .	383	420	437	446	470	408	379	352	388	445	475	468	423

PRODUCING WELLS.

Number of producing wells at the close of each month in the following years:

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1871, . . .	2,897	3,036	2,921	2,994	3,087	3,177	3,288	3,369	3,466	3,606	3,692	3,775	3,292
1872, . .	3,892	3,936	3,943	3,967	4,085	4,144	4,245	4,423	4,475	4,475	4,529	4,553	4,250
1873, . . .	4,485	4,490	4,411	4,265	4,317	4,400	4,420	4,163	3,940	3,654	3,413	3,358	4,193
1874, . . .	3,311	3,235	3,308	3,301	3,266	3,298	3,293	3,287	3,254	3,270	3,220	3,270	3,293
1875, . . .	3,132	3,112	3,060	3,052	3,080	3,084	3,067	3,088	3,112	3,125	3,174	3,088	3,098
1876, . . .	3,314	3,638	3,670	3,772	3,930	4,527	4,774	6,047	5,285	5,552	5,809	6,000	4,685
1877, . . .	6,283	6,441	6,666	6,846	7,037	7,352	7,567	7,684	7,872	8,061	8,323	8,458	7,383
1878, . . .	8,616	8,725	8,848	9,071	9,400	9,605	9,776	9,884	10,012	10,188	10,276	10,337	9,561
1879, . . .	10,482	10,582	10,692	10,782	11,045	11,223	11,461	11,585	11,760	11,860	11,960	11,960	11,283
1880, . . .	12,000	12,072	12,222	12,572	12,972	13,172	13,275	13,500	13,825	14,100	14,400	14,700	13,234
1881, . .	14,900	15,050	15,500	15,769	16,150	16,700	17,000	17,250	17,562	17,799	18,040	18,300	16,668

NEW WELLS COMPLETED.

Number of drilling wells completed in the following years:

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1871, . . .	86	57	64	87	99	154	147	112	128	182	154	191	1,461
1872, . .	37	120	89	121	135	84	128	118	82	. . . . .	64	105	1,183
1873, . . .	93	94	100	105	102	130	114	120	106	101	100	98	1,263
1874, . . .	102	104	110	113	109	101	121	107	104	120	106	120	1,317
1875, . . .	190	187	195	186	172	190	200	210	201	220	217	230	2,398
1876, . . .	240	231	242	200	202	261	248	270	209	273	272	272	2,920
1877, . . .	281	241	291	269	320	403	317	255	322	467	391	382	3,939
1878, . . .	274	226	211	409	470	269	203	186	174	229	248	165	3,064
1879, . . .	136	132	238	270	402	330	327	283	210	232	227	261	3,038
1880, . . .	320	230	367	500	426	310	338	358	356	361	336	302	4,217
1881, . .	222	220	271	316	406	374	336	332	312	322	363	406	3,380

CHARACTERISTICS OF THE RAILROADS OF PENNSYLVANIA.

NAME OF COMPANY.	Length of main line of road in miles.	Length in miles of branch roads owned and leased.	Total number of miles operated.	Total number of miles operated within this State.	Number of wooden bridges.	Number of stone bridges.	Number of iron bridges.	Number of depots or stations.	Number of wood and water stations.	Number of tunnels.	Number of engines.	No. of first-class passenger cars.	No. of second class passenger cars.	No. of baggage, mail, and express cars.	No. of freight cars of all classes.
Allegheny Valley,	259.50	70	329.50	329.50	93	62	10	113	16	6	69	59	9	8	2,159
Allentown,	4.50	.40	4.90	4.90	1			1	1						
Bradford, Eldenburg and Cuba,	6.74		6.74	6.74				3	1						
Buchanan Valley,	9	1	9	9	8			6	1						
Bald Eagle Valley,	61.50	26.67	80.37	80.37	17			26	7						
Baltimore and Cumberland Valley Ex.,	93		93	93											
Bangor and Portland,	16		16	16				6	2						200
Barclay Coal Company,	16.30	6.40	22.70	22.70	10		1	8	4		1	2			
Bedford and Bridgeport,	38.70	10.60	64	64	19		1	27	5				1		98
Bell's Gap,	23.60	8.23	26.70	26.70	7			11	3		1	1			
Berlin,	8.12		8.12	8.12	9			10	3		4				
Berlin Branch,	7		7	7							1				
Bradford, Bordell and Kinzua,	16	17.63	33.63	33.63				8	3			6	6		270
Bradford, Bordell and Smethport,	11.45	.68	12.13		1			2	2		1	2			
Buffalo, New York and Philadelphia,	120.55		130.55	41.90	13	3	6	30			33	15		6	1,913
Baltimore and Cumberland Valley,	4.65		4.65	4.65	1										
Buffalo, Bradford and Pittsburgh,	25.97	8.09	34.06	33.98	11	1		13	4						
Buffalo, Pittsburgh and Western,	135.90	37.10	173	149.40	13		1	34	28		33	14		10	869
Catasauqua and Fogelsville,	20	13	33	33	2	3	6	21	7		6	3		3	175
Catawissa,	94	23.50	117.50	117.50	16	22	3	28	2	3					
Charleroi,	23.80	2.90	26.70	26.70	22		3	28	8	2					
Chester Creek,	7.25		7.25	7.25						1					
Chester and Delaware River,	4.20	1.90	6.10	6.10	3		1	3	1						
Chester Valley,	21.60		21.60	21.60	28	26		23	2						
Cheltenham,	4.15		4.15	4.15	3	1		16							
Cleveland and Pittsburgh,	197.76	91.25	289	49.90	66	42	28	66	32	1	97	41	6	22	3,266

Colebrookdale,	12.80	2.29	15.09	15.09	7		1	9	1							
Columbia and Port Deposit,	40	3.55	43.55	30.56	13	13	2	21	3							
Connecting,	6.75	10.11	23.61	23.61		6	8	7	1							
Corning, Cowanesque and Antrim,	53	22.96	75.96	53.96				13	8		26	9	3	5	1,108	
Cornwall,	12.75		12.75	12.75												
Cumberland Valley,	82.20	60.25	142.45	83.95	3	4	18	48	12		22	22	3	11	263	
Delaware and Hudson Canal Company,	77.36	67.05	144.41	144.41	33			16	13		42	6		6	4,204	
Delaware, Lackawanna and Western.	115	222.57	337.57	337.57	11	5	10	47	37	3	171	43	1	26	21,863	
Delaware and Western,	20	4.55	24.55	2.41	10		5	12	2		4	3		2	30	
Dillsburg and Mechanicsburg,	7.70		7.70	7.70												
Dunkirk, Allegheny Valley and Pittsburgh,	90.60	11.90	102.50	51.70	18	1	9	21	12		12	6	2	2	91	
East Brandywine and Waynesburg	28.11	1.33	29.44	29.44	25			21	2							
East Broad Top,	30	6.17	36.17	36.17	18			9	6	2	7	2		2	221	
East Mahanoy,	7.54	4.58	15.31	15.31	3		6	4	2	1						
East Pennsylvania,	36	35.10	71.10	71.10	23	7	10	12	5							
Ebensburg and Cresson,	11		11	11	1			3	1							
Edgewood,	1		1	1					1		1					
Elmira and Williamsport,	75.50	19.47	94.97	88.47	50			20	7							
Erie and Pittsburgh,	84.49	27.35	111.84	111.84	10	4	1	20	8		29	5		4	1,331	
Emlenton, Shippenville & Clarion,	29.70	2.40	32.10	32.10	1			20	6		4	2			72	
Evergreen,	2.61		2.61	2.61	13	1		10	2		2	1	1			
Fayette County,	12.65		12.65	12.65	22				1							
Foxburg, St. Petersburg & Clarion,	13.20		13.20	13.20	14			8	1		3	3	1			
Frankford and Holmesburg,	4.16	.95	5.11	5.11	2			7	1						19	
Greenlick and Narrow Gauge,	3.50		3.50	3.50	5			3	1		1	1			17	
Hanover Junction, Hanover and Gettysburg,	30	2.50	32.50	32.50	19		1	16	5		9	9	3	2	115	
Hanover and York,	19		19	19												
Harrisburg, Portsmouth, Mt. Joy and Lancaster,	35.59	59.41	95	95	3	2	46	32	8	1						
Harrisburg and Potomac,	29.90	1	30.90	30.90				17	4		2		1	1	11	
Huntingdon and Broad Top Mtn.,	45	33.99	78.99	78.99	29		7	33	10		18	4	1	2	61	
Ironton,	10	4	14	14	11				2		2				1	
Jamestown and Franklin,	51.10	19.24	70.34	70.34	9		1	13	9	1						
Jefferson,	36.65	24.75	61.30	61.30	51	1		10	7							
Junction,	3.65	1.55	5.10	5.10			4			1						
Karns City and Butler,	17		17	17	4			13	3		3	1	1	2	30	
Kendall and Eldred,	15		15	15	1			8	2		6		7	2	128	
Keystone Coal,	5.50		5.50	5.50					2		1	1			80	

Characteristics of Road—Continued.

Name of Company.	Length of main line of road in miles.	Length in miles of branch roads owned and leased.	Total number miles of road operated.	Total number of miles operated within this State.	Number of wooden bridges.	Number of stone bridges.	Number of iron bridges.	Number of depots or stations.	Number of wood and water stations.	Number of tunnels.	Number of engines.	Number of first-class passenger cars.	No. of second-class passenger cars.	Number of baggage, mail, and express cars.	Number of freight cars of all classes.
Lake Shore and Michigan Southern,	540.40	1,406.17	1,946.66	138.96	52	12	58	318	132	2	537	100	64	96	15,758
Lancaster and Reading, (narrow gauge,)	34	15.50	49.50	49.50	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Lawrence,	17.98	7.24	25.22	11.50	4	1	2	12	2	. .	. .	. .	. .	. .	. .
Lehigh and Lackawanna,	15	12	27	27	. .	. .	. .	5	2	. .	. .	. .	. .	. .	. .
Lehigh and Susquehanna,	105	209.75	314.75	284.25	37	21	18	42	19	2	106	15	11	1	21,380
Lehigh Valley,	161	575.33	736.33	438.92	19	5	32	115	45	1	268	. .	73	41	28,480
Lewisburg and Tyrone,	68.34	3.31	71.65	71.65	39	. .	. .	22	4	2	. .	. .	. .	. .	. .
Ligonier Valley,	10.50	2.50	13	13	4	. .	. .	11	3	. .	2	2	1	. .	19
Little Saw-Mill Run,	3	1.50	4.50	4.50	4	. .	. .	4	1	. .	4	1	. .	. .	327
Littlestown,	9.50	. . .	9.50	9.50	. .	. .	. .	6	1	. .	. .	. .	. .	. .	. .
Little Schuylkill Navigation,	28.20	30.20	65.90	58.20	33	2	. .	16	7	1	7	1	1	1	9
Lykens Valley,	19.70	11.37	31.07	31.07	2	. .	2	8	4	. .	2	1	. .	1	5
McKean and Buffalo,	22.15	4.65	26.80	26.80	19	. .	. .	10	4	. .	. .	. .	. .	. .	. .
Mifflin and Centre County,	12.31	4.67	16.98	16.98	15	. .	. .	9	2	. .	. .	. .	. .	. .	. .
Mill Creek and Mine Hill Navigation,	3.80	21.41	25.21	25.21	. .	. .	2	6	2	. .	. .	. .	. .	. .	. .
Mine Hill and Schuylkill Haven,	42.50	95	137.50	137.50	78	2	1	. .	. .	. .	. .	. .	. .	. .	. .
Mont Alto,	10.25	9.50	19.75	19.75	11	. .	. .	14	. .	. .	1	2	. .	. .	. .
Moshannon and Clearfield,	10	2.72	12.72	12.72	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Montrose,	28	. . .	28	28	. .	. .	. .	13	5	. .	3	1	1	1	16
Mount Carbon and Port Carbon,	2.50	16	18.50	18.50	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Mount Pleasant and Broadford,	9.60	. . .	9.60	9.60	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Muney Crook,	36	6	42	42	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Meadville,	20.50	1.88	22.38	22.38	2	. .	. .	3	1	. .	. .	. .	. .	. .	. .
New York, Pennsylvania and Ohio,	387.93	469.13	857.09	239.76	45	3	54	115	79	. .	215	52	44	42	6,695
New York, Lake Erie and Western,	460	. . . . .	2,414.75	19.50	. .	. .	. .	. .	. .	. .	544	225	78	102	22,457

Nesquehoning Valley,	16.50	11.92	28.42	28.42	12	. .	. . .	12	4	1	. . .	. . .	. .	. . .	. . . .
New Castle and Beaver Valley,	14.95	6.50	21.45	21.45	2	6	1	9	2	. .	. . .	. . .	. .	. . .	. . . .
New Castle and Oil City,	36.25	5.75	42	42	7	. .	. . .	20	4	. .	4	. . .	2	. . .	49
New Castle and Mining,	3.75	. . . .	3.75	3.75	2	. .	. . .	. .	. .	. .	2	. . .	. .	. . .	68
Newry,	1.75	. . . .	1.75	1.75	. .	. .	. . .	1	. .	. .	. . .	. . .	. .	. . .	. . . .
Northern Central,	138	274.25	412.25	204.04	80	17	60	68	22	2	152	68	1	42	6,488
North-East Pennsylvania,	9.80	.90	10 70	10.70	. .	. .	. . .	11	. .	. .	. . .	. . .	. .	. .	. . . .
North Pennsylvania,	55.60	113.02	168.62	168.62	4	1	25	111	12	2	58	63	. .	32	1,148
Oil City and Ridgeway,	6	. . . .	6	6	6	. .	. . .	. .	. .	. .	1	. . .	. .	. .	29
Olean, Bradford and Warren,	10.43	1.50	11.93	11.93	1	. .	. .	8	1	. .	3	2	2	2	79
Parker and Karns City,	10.50	1.40	11.90	11.90	23	. .	. . .	11	3	. .	2	3	2	2	45
Peach Bottom,	60	. . .	. .	60	19	. .	. . .	40	6	. .	5	3	6	2	45
Pennsylvania,	436.47	1,782.95	2,582.35	799.40	77	96	142	774	238	7	523	256	109	113	17,298
Pennsylvania Coal,	47	15.80	62.80	62.80	5	. .	. . .	6	. . .	1	3	11	. .	. . .	3,260
Pennsylvania Company,	. . . .	. . . .	. . . .	. . . .	. .	. .	. . .	. .	. . .	. .	25	4	. .	1	7,059
Pennsylvania and New York Canal and,	104.30	132.81	237.11	237.11	3	. .	25	29	15	. .	53	. . .	. .	. . .	5,178
People's,	4.58	. . .	4.58	4.58	1	. .	. . .	. .	. .	. .	3	11	. .	. . .	6
Perkiomen,	38.50	8.70	47.20	47.28	14	. .	8	26	5	1	. . .	. . .	. .	. . .	16
Philadelphia and Baltimore Central,	46	. . . .	46	36.75	. .	. .	. . .	35	5	. .	. . .	. . .	. .	. . .	. . . .
Philadelphia and Chester County,	35	. . . .	. . . .	35	. .	. .	. . .	. .	. .	. .	. . .	. . .	. .	. . .	. . . .
Philadelphia and Erie,	287.49	135.59	449.95	449.95	120	. .	31	77	46	. .	. . .	. . .	. .	. . .	. . . .
Philadelphia, Germantown and Norristown,	17	19.62	36.62	27.37	6	5	4	21	4	. .	24	45	. .	13	192
Philadelphia, Newton and New York,	20.90	1.50	22.40	22.40	9	9	. . .	. .	. .	. .	. . .	. . .	. .	. . .	. . . .
Philadelphia and Reading,	327	1,008.40	1,335.40	882.10	799	112	197	260	119	10	508	384	46	76	22,232
Philadelphia and Trenton,	26.57	55.42	104.33	48.91	3	. .	5	37	5	. .	. . .	. . .	. .	. . .	. . . .
Philadelphia, Wilmington and Baltimore,	112.18	315.22	427.40	18.86	5	30	33	142	22	. .	86	138	. .	51	1,299
Pickering Valley,	12.07	. . .	12.07	12.07	2	. .	3	9	. . .	. .	. . .	. . .	. .	. . .	. . . .
Pittsburgh Southern,	37.90	1.30	39.20	39.20	. .	. .	. . .	32	4	. .	4	3	1	3	58
Pittsburgh and Castle Shannon,	6	4	10	10	. .	. .	. . .	14	2	. .	5	4	3	1	386
Pittsburgh, Bradford and Buffalo,	58.10	24.60	82.70	82.70	2	. .	. . .	16	10	. .	5	3	6	4	91
Pittsburgh, Cincinnati and St. Louis,	192.30	1,161.20	1,353.50	44.70	25	29	22	588	100	9	110	36	13	27	5,007
Pittsburgh and Connellsville,	146.50	63.50	210	186.60	12	1	29	75	22	4	90	22	10	15	174
Pittsburgh, Fort Wayne and Chicago,	467.97	292.95	760.90	116.48	10	65	79	155	74	. .	281	127	25	59	7,789
Pittsburgh and Lake Erie,	68	24.36	92.36	81.26	3	9	18	47	6	. .	30	18	9	4	1,316
Pittsburgh, Virginia and Charleston,	70	. . . .	70	70	. . .	. .	. . .	. . .	. . .	. .	. . .	. . .	. .	. . .	. . . .

Characteristics of Road—Continued.

NAME OF COMPANY.	Length of main line of road in miles.	Length in miles of branch roads owned and leased.	Total number miles of road operated.	Total number of miles operated within this State.	Number of wooden bridges.	Number of stone bridges.	Number of iron bridges.	Number of depots or stations.	Number of wood and water stations.	Number of tunnels.	Number of engines.	Number of first-class passenger cars.	No. of second-class passenger cars.	Number of baggage, mail, and express cars.	Number of freight cars of all classes.
Plymouth,	9.25		9.25	9.25	11		2	4	1						
Pomeroy and State Line,	21.66	1.02	22.68	22.68	29			15	2						
Reading and Columbia,	40	22.07	77.32	62.07	72	2	5	34	13		10	6		1	58
River Front,	2.76	2.76	5.52	5.52	2										
Salisbury,	8.67	3.25	11.92	11.92	3			8	2		1			1	
Schuylkill Valley Navigation and Railroad Company,	11	10.61	21.61	21.61	2	1	1	12	1						
Shamokin Valley and Pottsville,	27.30	18.38	45.68	45.68	21			8	5						
Sharon,	9	9	18	18	6			12	2						
Shenango and Allegheny,	4.60	1.20	5.80	5.80	24			13	4		6	1		2	212
Slate Ridge and Delta,	1		1	1											
Somerset and Cambria,	45.10	2.70	47.80	47.80			23	20			1		1	1	2
South Mountain Railway and Mining,	17.78	2	19.78	19.78	1			10	3		3	2			11
South Pennsylvania Railway and Mining Company,	21	2	23	23	3			15	2						
South-West Pennsylvania,	44.10	27.19	71.29	71.29	67		2	43	8						
State Line and Sullivan,	24	1	25	25	10			7	3		3	2		1	
Stony Creek,	10.30	2.63	12.93	12.93			9	8	1						
Sunbury and Lewistown,	43.32	3.37	46.69	46.69	27			15	5						
Sunbury, Hazleton and Wilkes-Barre,	43.44	7.26	50.70	50.70	13			15	5						
Tioga,	50.60	18.40	69	59.40	22		2	25	10		17	2	5	3	1,005
Tresckow,	6.50	4.50	11	11											
Tyrone and Clearfield,	44.04	27.59	71.63	71.63	39			30	10						
Waynesburg and Washington,	27.93		27.93	27.93	4			26	4		3	1	1	1	15
West Chester,	5.19	.78	5.97	5.97			1	5							
West Chester and Philadelphia,	26.30	9.30	35.60	35.60	10		17	24	4		12	25			
Western Maryland,	90	34.40	124.40	.50	110		6	59	10		16	34		8	342

Western Pennsylvania,	63.50	47.87	111.37	111.37	33	. .	. . .	67	13	2	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Wheeling, Pittsburgh and Baltimore,	32	. . . . .	32	17	12	1	. . .	10	4	6	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Wilmington and Northern,	63.60	27.56	91.16	73.58	16	. .	. . .	44	10	. .	15	4	2	5	. . .	. . .	. . .	. . .	. . .	131
Wind Gap and Delaware,	1.75	. . . . .	1.75	1.75	. . .	. . .	. . .	1	. . .	. .	. . .	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Total,	8,165.44	9,825.93	19,244.70	9,506.34	1,867	612	1,106	4,853	1,474	74	4,372	1,908	598	875	. . .	. . .	. . .	. . .	. . .	229,540

The Amount of Freight Transported on the Railroads of Pennsylvania during the year 1881, specifying the quantity in Tons.

NAME OF COMPANY.	Anthracite coal.	Bituminous coal.	Petrolium and other oils.	Pig iron.	Railroad iron.	Other iron or castings.	Iron and other ores.
Allegheny Valley,	6,554	1,539,528	397,188	123,758	10,621	. . . . .	207,528
Bangor and Portland,	3,820	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Barclay Coal Company,	. . . . .	531,536	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Bell's Gap,	. . . . .	86,628	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Berlin,	. . . . .	33,108	14	. . . . .	12	7	. . . . .
Bradford, Bordell and Kinzua,	101	1,099	251	. . . . .	. . . . .	1,646	. . . . .
Buffalo, New York and Philadelphia,	74,874	712,862	93,995	1,977	5,299	7,117	802
Baltimore and Cumberland Valley,	1,631	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Buffalo, Pittsburgh and Western,	17,121	349,502	133,704	. . . . .	. . . . .	. . . . .	65,806
Catasauqua and Foglesville,	56,140	1,997	. . . . .	27,038	200	354	232,433
Chartiers,	. . . . .	260,735	34	112	18	291	. . . . .
Cleveland and Pittsburgh,	. . . . .	1,192,562	95,308	110,893	40,562	43,508	324,612
Corning, Cowanesque and Antrim,	1,765	752,419	16	. . . . .	176	368	. . . . .
Cornwall,	109,806	. . . . .	. . . . .	92,872	. . . . .	. . . . .	274,300
Cumberland Valley,	104,381	32,181	1,923	19,592	6,720	14,151	101,259
Delaware and Hudson Canal Company,	3,091,459	. . . . .	264	12,642	5,961	19,622	77,037
Delaware, Lackawanna and Western,	5,268,216	62,442	6,702	133,984	139,928	74,748	92,284
Delaware and Western,	6,725	24,516	22	1,253	. . . . .	5,713	14,720
Dunkirk, Allegheny Valley and Pittsburg,	17,446	17,386	132,431	52	122	2,285	152
East Broad Top,	10,978	143,449	107	19,117	. . . . .	. . . . .	25,219
Elmira and Williamsport,	. . . . .	1,133,753	932	7,694	42,496	25,192	11,822
Erie and Pittsburgh,	154,486	255,192	1,430	118,571	3,801	17,458	106,914
Emlenton, Shippenville and Clarion,	78	411	. . . . .	. . . . .	. . . . .	. . . . .	2,671
Foxburg, St. Petersburg and Clarion,	96	126	. . . . .	. . . . .	. . . . .	. . . . .	2,697
Greenlick and Narrow Gauge,	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	14,208
Hanover Junction, Hanover and Gettysburg,	. . . . .	11,483	. . . . .	. . . . .	. . . . .	. . . . .	31,910
Harrisburg and Potomac,	4,551	785	1	3,413	349	102	21,969
Huntingdon and Broad Top Mountain,	1,293	518,420	971	23,223	1,350	369	48,904
Ironton,	7,511	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	72,074
Kendall and Eldred,	6,734	. . . . .	. . . . .	. . . . .	. . . . .	439	. . . . .
Lake Shore and Michigan Southern,	597,635	994,856	307,716	273,633	160,573	398,347	180,037
Lawrence,	124,966	262,527	215	46,222	888	17,516	188,575
Lehigh and Lackawanna,	13,802	. . . . .	16	. . . . .	. . . . .	4,275	17,889
Lehigh and Susquehanna,	3,783,774	8,205	178,191	65,987	7,166	32,645	180,891
Lehigh Valley,	6,486,341	88,844	290,638	395,107	165,726	. . . . .	780,643

The Amount of Freight, &c.—Continued.

Name of Company.	Anthracite coal.	Bituminous coal.	Petroleum and other oils.	Pig iron.	Railroad iron.	Other iron or castings.	Iron and other ores.
Ligonier Valley,		40				20	
Little Saw-Mill Run,		416,938					
Lykens Valley,		470,438	153	482	152	192	2
McKean and Buffalo,	800	105,235	20			4,950	
Mont Alto,		8,924			4,824		12,633
Montrose,	4,311						
Muncy Creek,	4,524	214		26	46	125	525
Meadville,		1,069				18	
New York, Pennsylvania and Ohio,	166,973	1,128,589	151,951	207,512	48,999	241,576	508,724
New Castle and Beaver Valley,	329,577	353,702	1,475	119,059	5,364	35,426	192,739
New Castle and Oil City,	192	56,593	498	2,334		16,478	30,958
Northern Central,		1,629,417	257,984	150,174	33,479	103,125	368,626
North-East Pennsylvania,	6,450		20			50	3,000
Oil City and Ridgeway,		3,893					
Olean, Bradford and Warren,		6,122				1,225	
Peach Bottom,	1,447				19		
Pennsylvania,	1,469,265	7,740,041	705,997	857,077	282,972	622,367	1,024,823
Pennsylvania Coal,	1,610,326						
Pennsylvania and New York Canal and,	1,241,023	419,550		28,021	71,616		11,905
Perkiomen,	164,592	152	646	25,082	10,370	5,054	16,071
Philadelphia and Baltimore Central,	38,552	2,296	923	3,439			3,604
Philadelphia and Erie,	1,230,457	1,253,362	591,935	60,268	61,612	112,544	40,627
Philadelphia, Newton and New York,	8,497		69		56	819	
Philadelphia and Reading,	8,664,879	375,920	422,200	542,069	282,054	462,921	922,922
Philadelphia, Wilmington and Baltimore,	106,263	107,722	11,863	23,354	4,778	92,814	9,508
Pittsburgh Southern,	19,992	368			508		
Pittsburgh and Castle Shannon,		134,450					
Pittsburgh, Bradford and Buffalo,	591	170					
Pittsburgh, Cincinnati and St. Louis,		1,331,044	19,761	63,353	68,765	94,547	113,836
Pittsburgh and Connellsville,		1,229,057	4,929	128,362	39,982	201,740	293,939
Pittsburgh, Fort Wayne and Chicago,	87,962	566,154	59,629	228,692	94,464	144,164	190,351
Pittsburgh and Lake Erie,	227,464	373,275	1,181	61,272	28,937	138,989	195,212
Reading and Columbia,	227,545						
Salisbury,		112,476					
Shamokin Valley and Pottsville,		1,285,365	686	13,954	5,867	11,483	819

The Amount of Freight, &c.—Continued.

NAME OF COMPANY.	Anthracite coal.	Bituminous coal.	Petroleum and other oils.	Pig iron.	Railroad iron.	Other iron or castings.	Iron and other ores.
Shenango and Allegheny,	. . . . .	205,792	. . . . .	. . . . .	. . . . .	504	3,400
Somerset and Cambria,	1,970	66	181	5,804	2,115	77,214	. . . . .
State Line and Sullivan,	68,995	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Stony Creek,	85,986	413	97	12,800	. . . . .	55	149
Tioga,	1,964	838,201	399	89	2,001	569	38
Waynesburg and Washington,	. . . . .	2,520	. . . . .	. . . .	. . . . .	115	. . . . .
West Chester and Philadelphia,	75,329	173	119	99	. . . . .	. . . . .	. . . . .
Western Maryland,	. . . . .	34,618	. . . . .	. . . . .	. . . . .	. . . . .	4,191
Wheeling, Pittsburgh and Baltimore,	. . . . .	11,050	238	2	61	56	. . . . .
Wilmington and Northern,	136,893	63,105	. . . . .	62,789	. . . . .	32,451	72,809
Total,	35,825,023	19,085,066	3,875,026	3,963,353	1,641,455	3,070,002	7,061,307

The Amount of Freight, &c.—Continued.

Name of Company.	Stone and lime.	Agricultural products.	Merchandise and manufactures.	Live stock.	Lumber.	Other articles.
Allegheny Valley,	. . . . .	27,831	242,720	1,828	247,036	257,409
Bangor and Portland,	. . . . .	. . . . .	2,500	. . . . .	800	33,759
Barclay Coal Company,	. . . . .	385	1,198	. . . . .	823	3,113
Bell's Gap,	. . . . .	. . . . .	2,244	. . . . .	14,449	4,215
Berlin,	114	459	. . . . .	. . . . .	398	659
Bradford, Bordell and Kinzua,	258	3,878	1,306	. . . . .	14,436	15,026
Buffalo, New York and Philadelphia,	7,217	47,006	109,537	1,979	143,607	60,467
Baltimore and Cumberland Valley,	. . . . .	. . . . .	. . . . .	530	3,246	13,787
Buffalo, Pittsburgh and Western,	23,556	17,112	32,218	. . . . .	78,242	30,563
Catasauqua and Foglesville,	106,231	2,045	7,360	. . . . .	4,688	1,237
Chartiers,	1,304	9,272	7,471	3,682	4,550	1,892
Cleveland and Pittsburgh,	108,536	58,898	319,433	16,590	104,296	66,394
Corning, Cowanesque and Antrim,	954	10,779	26,189	87	32,084	2,666
Cornwall,	17,663	. . . . .	. . . . .	. . . . .	. . . . .	25,198
Cumberland Valley,	6,721	65,508	114,620	19,241	54,427	10,087
Delaware and Hudson Canal Company,	566	34,958	36,064	3,278	63,348	27,760
Delaware, Lackawanna and Western,	92,268	289,984	168,410	9,966	129,944	51,161
Delaware and Western,	1,159	4,034	5,603	7	3,431	150
Dunkirk, Allegheny Valley and Pittsburgh,	891	10,901	12,726	880	26,854	22,937
East Broad Top,	. . . . .	397	3,588	. . . . .	6,061	897
Elmira and Williamsport,	8,108	172,283	149,148	10,386	92,634	1,970
Erie and Pittsburgh,	116,112	14,141	56,158	4,237	20,381	3,827
Emlenton, Shippenville and Clarion,	. . . . .	101	712	. . . . .	1,362	35
Foxburg, St. Petersburg and Clarion,	. . . . .	140	957	. . . . .	1,362	48
Hanover Junction, Hanover and Gettysburg,	15,742	9,399	11,646	2,569	8,372	2,337
Harrisburg and Potomac,	78	4,123	5,842	. . . . .	. . . . .	89
Huntingdon and Broad Top Mountain,	32,618	3,093	22,568	1,383	29,231	. . . . .
Ironton,	54,015	. . . . .	. . . . .	. . . . .	. . . . .	3,036
Karns City and Butler,	. . . . .	. . . . .	5,605	. . . . .	. . . . .	. . . . .

The Amount of Freight, &c.—Continued.

NAME OF COMPANY.	Stone and lime.	Agricultural products.	Merchandise and manufactures.	Live stock.	Lumber.	Other articles.
Kendall and Eldred,	.....	3,182	20,909	.....	12,568	.....
Lake Shore and Michigan Southern,	315,028	1,885,181	1,172,713	563,566	1,015,667	1,299,556
Lawrence,	96,998	4,346	19,835	6,687	4,735	10,405
Lehigh and Lackawanna,	15,187	1,456	1,521	20	236	225
Lehigh and Susquehanna,	107,411	62,643	67,713	1,919	113,183	31,632
Lehigh Valley,	150,228	.....	.....	22,397	148,238	444,611
Ligonier Valley,	15	446	195	323	11,564	1,078
Little Saw-Mill Run,	.....	.....	.....	.....	.....	1,875
Lykens Valley,	210	1,040	4,593	10	3,464	89
McKean and Buffalo,	350	725	13,455	120	9,000	5,500
Mont Alto,	.....	1,543	7,167	.....	5,122	.....
Montrose,	.....	.....	.....	.....	2,829	5,469
Muncy Creek,	530	233	1,228	15,300	.....	2,165
Meadville,	584	61	326	25	166	294
New York, Pennsylvania and Ohio,	317,069	646,628	422,602	60,041	186,087	801,158
New Castle and Beaver Valley,	164,969	14,078	53,738	11,804	16,447	26,839
New Castle and Oil City,	1,498	3,043	6,589	688	11,279	65,680
Northern Central,	114,251	1,053,864	448,511	49,053	620,775	41,015
North-East Pennsylvania,	800	3,500	350	450	5,000	2,494
Olean, Bradford and Warren,	.....	2,536	9,439	.....	3,367	.....
Parker and Karns City,	.....	.....	8,515	.....	.....	.....
Peach Bottom,	1,713	.....	2,287	200	1,195	16,161
Pennsylvania,	760,264	1,734,944	1,143,157	445,797	977,979	464,682
Pennsylvania Coal,	.....	.....	1,314	.....	1,776	.....
Pennsylvania and New York Canal and,	65,795	.....	794,893	20,451	64,001	.....
Perkiomen,	6,717	114,436	117,478	29,283	71,440	104,379
Philadelphia and Baltimore Central,	5,995	25,511	41,742	2,884	12,155	11,996
Philadelphia and Erie,	65,140	783,999	261,083	18,424	684,126	113,479
Philadelphia, Newton and New York,	1,033	1,704	.....	233	1,317	2,784

Philadelphia and Reading,	642,631	1,197,862	528,048	56,430	451,857	2,292,014
Philadelphia, Wilmington and Baltimore,	38,803	145,070	532,660	69,651	109,806	94,655
Pittsburgh Southern,	480	2,305	4,286	907	2,619	237
Pittsburgh and Castle Shannon,						125
Pittsburgh, Bradford and Ruffalo,	923	4,315		5,049	1,630	
Pittsburgh, Cincinnati and St. Louis,	68,700	604,294	508,692	186,617	107,213	94,841
Pittsburgh and Connellsville,	256,197	19,237		2,602	107,839	463,162
Pittsburgh, Fort Wayne and Chicago,	262,190	736,155	679,732	492,155	314,552	919,120
Reading and Columbia,	239,810	19,922	72,150	504	24,912	31,933
Salisbury,			271,524			
Shamokin Valley and Pottsville,	13,366	104,910	96,272	359	49,066	10,748
Shenango and Allegheny,	4,942	2,568	3,861	68	19,486	20,180
Somerset and Cambria,	2,897	439		1	4,611	2,299
Stony Creek,	271	5,929	9,089	893	5,058	19,235
Tioga,	1,855	5,127	15,291	1,220	38,884	5,440
Waynesburg and Washington,	558	3,678	2,326	2,154	1,072	711
West Chester and Philadelphia,	1,682	7,754	72,252	312	3,441	445
Western Maryland,	4,047			10,452	13,771	4,513
Wheeling, Pittsburgh and Baltimore,	3,006	4,858	970	1,954	2,040	114,986
Wilmington and Northern,	30,313	10,659	52,077		31,795	4,234
Total,	4,359,227	10,006,508	8,816,676	2,157,646	6,359,430	9,214,263

EMPLOYÉS

AN EXHIBIT *of the number of* **EMPLOYÉS** *engaged in the various industries in the State, compiled from returns made to the Bureau for the year ended December 31, 1881.*

Coal—Anthracite.

Miners,	21,442
Inside laborers,	12,550
Outside laborers and drivers,	11,241
Boys, (slate-pickers and others,)	15,181
Engineers and firemen,	2,245
Blacksmiths,	530
Carpenters,	852
Employees not classified,	11,123
Total,	75,160

Coal—Bituminous.

Miners,	22,153
Inside laborers,	903
Outside laborers and drivers,	4,443
Blacksmiths,	307
Carpenters,	233
Mining overseers and clerks,	572
Coke-chargers and drawers,	1,413
Boys,	1,908
Employees not classified,	3,588
Total,	35,530

Blast Furnaces.

Foundrymen,	99
Keepers and helpers,	745
Fillers,	1,455
Engineers and firemen,	390
Blacksmiths and helpers,	244
Carpenters,	192
Employees not classified,	8,235
Total,	11,360

Rolling-Mills.

Puddlers and helpers,	6,710
Heaters,	922
Rollers,	437
Roll hands,	1,131
Engineers,	433
Millwrights and carpenters,	371
Blacksmiths,	263
Nailers,	288
Feeders,	683
Laborers,	4,887
Boys,	1,413
Employees not classified,	12,744
Total,	30,300

Bloomaries.

Run-out men,	35
Forgemen and helpers,	261
Hammermen and helpers,	33
Engineers,	17
Blacksmiths,	13
Carpenters,	9
Laborers,	130
Boys,	14
Employees not classified,	35
Total,	557

Bessemer Steel.

Converting department,	496
Blooming department,	287
Rail department,	811
Gas-producing department,	43
Steam-producing department,	243
Forge department,	73
Locomotive department,	136
Miscellaneous department,	3,273
Not classified,	3,383
Total,	8,760

Crucible and other Steel.

Melters and helpers,	51
Hammermen and helpers,	41
Engineers and firemen,	94
Blacksmiths,	33
Carpenters,	22
Millwrights and machinists,	66
Laborers,	1,046
Boys,	145
Wire-drawers,	218
Not classified,	847
Total,	2,563

Iron Foundries and Machine Shops.

Molders,	1,719
Machinists,	1,035
Pattern-makers and carpenters,	735
Blacksmiths and helpers,	567
Boiler-makers and helpers,	450
Laborers,	1,802
Boys,	1,033
Not classified,	3,153
Total,	11,449

EMPLOYEES—Continued.

Glass—Window.

Blowers,	227
Gatherers,	214
Flatteners, cutters, and assorters,	166
Employees in flattening department,	95
Batch-mixers,	29
Teazers and helpers,	119
Pot-makers and assistants,	56
Laborers,	171
Not classified,	314
Total,	1,391

Glass—Flint and Green.

Pressers,	256
Handlers, finishers, and foot-finishers,	309
Blowers—mold, chimney, and other,	812
Gatherers,	549
Mixers,	32
Teazers,	58
Cutters, grinders, and stopper-makers,	121
Laborers,	360
Boys—snapping, carrying, and other,	2,343
Not classified,	2,691
Total,	7,471

Lumber.

Sawyers,	236
Setters, edgers, and filers,	226
Lath-sawyers and bundlers,	116
Laborers,	1,643
Boys,	145
Not classified,	850
Total,	3,216

Tanneries.

Tanners,	314
Beam hands,	663
Yard hands,	458
Currlers, splitters, and shavers,	283
Scourers, blackers, and finishers,	147
Laborers,	1,277
Not classified,	1,254
Total,	4,401

Textile Fabrics.

Overseers,	1,232
Skilled workmen,	11,421
Unskilled workmen,	5,246
Boys under sixteen years of age,	4,183
Women and girls over fifteen years of age,	23,676
Girls under fifteen years,	3,543
Engineers,	327
Blacksmiths,	52
Carpenters,	167
Laborers,	563
Not classified,	4,261
Total,	54,016

Railroads.

Master mechanics,	36
General foremen,	22
Foremen,	377
Road foremen of engines,	22
Clerks in all departments,	2,466
Telegraph operators,	1,558
Passenger and freight agents,	1,394
Depot and train masters, and dispatchers,	463
Conductors—passenger and freight,	2,102
Brakemen,	6,634
Baggage-masters and porters,	555
Locomotive engineers,	2,108
Locomotive firemen,	2,180
Stationary enginemen and firemen,	325
Distributing and yard enginemen and firemen,	1,002
Blacksmiths and helpers,	2,155
Machinists and helpers,	2,856
Boiler-makers and helpers,	832
Tinners, coppersmiths, and helpers,	340
Carpenters,	4,748
Painters,	745
Trackmen and laborers,	17,237
Masons and quarrymen,	303
Apprentices,	501
Not classified,	11,582
Total,	62,543

Miscellaneous Industries.

Foremen,	331
Skilled workmen,	12,987
Unskilled workmen,	10,773
Boys,	2,288
Not classified,	7,512
Total,	33,891
Grand total,	342,617

AN EXHIBIT *of the average daily wages paid to employés of various occupations throughout the State, from 1873 to 1881, compiled from manufacturers' and operators' returns to the Bureau.*

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Anthracite coal.							
Miners on contract,	$3 00	$2 97	$1 91	$1 97	$2 09	$2 71	$2 52
Miners on wages,	2 40	2 33	1 78	1 66	1 63	1 88	2 05
Laborers, inside,	2 00	1 82	1 69	1 38	1 37	1 62	1 72
Laborers, outside,	1 65	1 56	1 47	1 21	1 19	1 30	1 27
Platform men and others,	1 66	1 66	1 51	1 21	. . .	1 31	1 29
Slate pickers, boss,	1 40	1 29	1 06	. . . .	1 05	1 44	1 37
Slate pickers, boys,	60	61	53	51	56	57	65
Door and fan boys,	1 05	1 03	93	61	61	77	75
Drivers,	1 64	1 63	1 62	1 30	1 19	1 26	1 29
Engineers,	2 50	2 28	2 15	1 68	1 65	1 80	1 78
Firemen,	. . .	. . .	. . .	1 26	. . .	1 44	1 40
Blacksmiths,	2 50	2 28	2 15	. . .	1 65	1 80	1 81
Carpenters,	2 50	2 28	2 15	. .	1 65	1 80	1 83
Other employees,	. . .	. . .	. . .	. . .	1 66	1 66	1 66
Bituminous coal.							
Miners,	2 47	2 59	1 65	1 88	1 74	2 25	2 16
Laborers, inside,	1 90	1 71	1 64	1 47	1 42	1 69	1 81
Laborers, outside,	1 76	1 52	1 34	1 47	1 42	1 46	1 63
Mule drivers,	1 81	1 61	1 57	1 46	1 41	1 63	1 80
Blacksmiths,	2 29	2 15	1 80	1 91	1 75	1 96	2 16
Carpenters,	2 29	2 15	1 80	1 90	1 75	1 84	2 06
Mining overseers,	3 04	2 84	2 40	2 64	2 56	2 63	2 60
Clerks,	. . .	. . .	. .	2 38	. . .	1 93	2 11
Coke oven chargers,	. . .	. . .	. . .	1 60	. .	1 46	1 76
Coke oven drawers,	. . .	. .	. . .	1 60	1 55	1 44	1 74
Boys,	97	87	90	77	68	79	84
Blast furnaces.							
Foundrymen,	. . .	. . .	. . .	2 11	2 48	2 70	2 92
Keepers,	. . .	. . .	. . .	1 40	1 50	1 56	1 75
Keepers' helpers,	. . .	. . .	. . .	1 15	1 40	1 35	1 55
Fillers,	. . .	. . .	. . .	1 15	1 61	1 33	1 63
Cindermen,	. . .	. . .	. . .	1 16	1 32	1 26	1 43
Barrowmen,	. . .	. . .	. . .	. .	. .	1 18	1 31
Hot-blast-men,	. . .	. . .	. . .	1 26	. . .	1 45	1 62
Weighmen,	. . .	. . .	. . .	1 40	.	1 30	1 55
Metal carriers,	. . .	. . .	. . .	1 25	1 41	1 41	1 68
Engineers,	. . .	. . .	. . .	1 24	1 60	1 67	1 69
Firemen,	. . .	. . .	. . .	1 06	1 33	1 30	1 52
Blacksmiths,	. . .	. . .	. . .	1 34	1 37	1 63	1 80
Blacksmiths' helpers,	. . .	. . .	. . .	1 08	.	1 16	1 25
Carpenters,	. . .	. . .	. . .	1 49	1 52	1 60	1 69
Laborers,	. . .	. . .	. . .	93	1 19	1 05	1 15
Foremen,	. . .	. . .	. . .	2 60	. . .	2 11	2 06
Other employees,	. . .	. . .	. . .	1 50	1 50	1 36	1 45
Bloomaries.							
Runoutmen,	. . .	. . .	. . .	. . .	. . .	. . .	3 04
Forgemen,	. . .	. . .	. . .	. . .	. . .	. . .	2 31
Helpers,	. . .	. . .	. . .	. . .	. . .	. . .	1 23
Hammermen,	. . .	. . .	. . .	. . .	. . .	. . .	2 61
Hammermen's helpers,	. . .	. . .	. . .	. . .	. . .	. . .	1 23
Engineers,	. . .	. . .	. . .	. . .	. . .	. . .	1 74
Blacksmiths,	. . .	. . .	. . .	. . .	. . .	. . .	1 63
Carpenters,	. . .	. . .	. . .	. . .	. . .	. . .	1 56
Laborers,	. . .	. . .	. . .	. . .	. . .	. . .	1 10
Boys,	. . .	. . .	. . .	. . .	. . .	. . .	60
Other employees,	. . .	. . .	. . .	. . .	. . .	. . .	1 58

EASTERN DISTRICT, *comprising the counties of Berks, Bucks, Chester, Columbia, Cumberland, Dauphin, Delaware, Lackawanna, Lancaster, Lebanon, Lehigh, Mifflin, Montgomery, Montour, Northampton, Northumberland, Perry, Philadelphia, and Schuylkill.*

OCCUPATIONS.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Rolling-Mills.									
Puddlers,	$4 00	$3 60	$3 11	$2 78	$2 40	$2 40	$2 53	$2 80	$3 03
Puddlers' helpers,	2 25	2 00	1 57	1 51	1 35	1 27	1 32	1 40	1 60
Heaters,	5 00	4 70	4 60	3 26	3 10	3 03	3 03	4 20	3 81
Heaters' helpers,	2 35	2 30	2 25	1 71	1 50	1 55	1 55	1 60	1 50
Rollers,	5 00	4 50	4 00	3 68	3 05	3 12	2 95	4 70	4 69
Roughers,	2 50	2 50	2 45	1 88	1 75	1 60	1 57	1 89	2 56
Catchers,	2 50	2 50	2 33	1 88	2 40	1 51	1 57	1 76	2 06
Hookers,	1 90	1 80	1 75	1 23	1 80	1 15	1 22	1 20	1 25
Shearmen,	..	...	1 43	1 67	1 58	1 40	1 41	1 55	1 50
Straighteners,	...	...	1 43	1 67		1 56	1 56	1 48	1 50
Engineers,	...	.	2 54	1 87	2 25	1 72	1 90	1 90	2 00
Millwrights,	...	...	...	.	.	...	2 00	2 18	2 17
Blacksmiths,	...	...	2 24	2 06	1 82	1 73	1 71	1 75	1 96
Machinists,	...	.	2 56	2 02	2 52	2 00	2 08	2 17	2 17
Carpenters,	...	.	2 37	1 92	1 80	1 59	1 43	1 58	1 67
Nailers,	...	...	...	..	...		4 10		3 64
Feeders,	...	...	...		...	1 12	1 20	1 10	1 17
Firemen,	...	...	...	1 31		1 17	1 23	1 16	1 50
Laborers,	...	...	1 12	1 20	1 13	1 00	1 10	1 14	1 15
Boys,	...	...	75	80		57	70	63	69

WESTERN DISTRICT, *comprising the counties of Allegheny, Armstrong, Beaver, Erie, Lawrence, Mercer, and Westmoreland.*

OCCUPATIONS.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Rolling-Mills.									
Puddlers,	$4 75	$4 11	$3 60	$3 00	$3 30	$3 30	$3 30	$3 57	$3 59
Puddlers' helpers,	2 95	2 55	2 25	1 90	2 00	2 00	2 00	2 20	2 23
Heaters,	6 10	5 70	5 60	4 00	4 00	4 70	4 70	5 20	5 01
Heaters' helpers,	2 60	2 30	2 00	1 63	1 63	1 80	1 74	1 75	1 74
Rollers,	8 50	8 25	8 00	7 24	6 50	6 40	6 40	7 00	7 24
Roughers,	4 20	3 80	3 30	2 65	2 25	2 25	2 70	3 25	3 15
Catchers,	4 25	3 80	3 30	2 65	2 25	2 95	2 70	3 25	3 36
Hookers,	2 00	1 85	1 75	1 52	1 25	1 44	1 60	1 44	1 50
Shearmen,	..	..	1 43	1 88	1 75	1 60	1 62	1 60	1 74
Straighteners,	...	...	1 43	1 88		1 62	1 48	1 52	1 74
Engineers,	...	...	2 54	2 66	1 83	2 37	2 57	1 87	2 66
Millwrights,	..	...	.			3 03	2 76	2 24	2 92
Blacksmiths,	...	...	2 24	2 78	2 55	2 48	2 44	1 83	2 67
Machinists,	.	...	2 56	2 64	2 75	2 51	2 39	2 50	2 50
Carpenters,	..	..	2 37	2 33	2 25	1 76	1 87	1 61	2 16
Nailers,	...	.	...	...		6 25	6 00		8 00
Feeders,	...	...	...		2 00	2 12	1 50	1 27	2 00
Firemen,	...	...	...	1 70	1 66	1 64	1 55	1 29	1 74
Laborers,	...	...	1 12	1 28	1 25	1 12	1 27	1 14	1 31
Boys,	...	...	75	62	75	69	90	68	79

BESSEMER STEEL WORKS—Continued.

OCCUPATIONS.	1881.	1881.
Lead Department.		
Superintendent,		$3 66
Heater,	$5 10	5 20
Heater's helpers,	1 50	1 20
Hookers,	1 75	1 85
Drivers,		1 57
Door-hands,	1 25	1 20
Rammers,	1 75	1 65
Stokers,	1 00	1 35
Engineer,	2 25	1 05
Laborers,	1 25	1 04
Second roughers,	1 80	1 05
Cinders,	1 90	1 85
Crane catchers,	1 25	1 50
Rollers,	1 65	3 45
Helpers,		2 25
Shearers,		2 75
Drop-hands,	1 20	1 25
Hydraulic hands,		1 71
Head-ups,		2 60
Hot-bed hands,	1 00	1 45
Stampers,	2 25	1 65
Cold straighteners,	1 25	1 85
Buggies,	1 75	1 10
Firemen,		1 60
Locomotive Department.		
Foreman,	1 25	1 20
Weighmasters,	1 30	1 65
Firemen,	90	1 25
Engineers,	1 05	1 05
Brakemen,	1 50	1 50
Machine Shops Department.		
Machinists,	1 25	1 25
Machinist's helpers,	1 15	1 25
Blacksmiths,	1 20	1 30
Blacksmith's helpers,	1 00	1 25
Carpenters,	1 65	1 20
Foundrymen,	1 25	1 75
Painters,		1 01
Masons and bricklayers,	1 25	1 25
Mason's helpers,	1 00	1 20
Laborers,	1 25	1 15
Horse and cart,		2 50
Boys,		1 05
Pumping Department.		
Superintendent,		1 01
Foreman,	1 00	1 25
Blowers,	2 50	1 90
Main hands,	1 25	1 00
Main wheelers,		1 75
Weighmasters,	1 00	1 25
Hoist hands,	1 00	1 80
Shearers, iron, &c.,	1 25	2 00
Chargers,	1 25	2 25
Iron heaters,	1 50	1 25
Spring makers,		1 25
Spring maker's helpers,		1 05

OCCUPATIONS.	1880.	1881.
Iron roller's helpers,	$2 25	$2 25
Cinderman,	2 05	2 25
Hammer hands,	1 25	1 20
Conveyer hands,	1 00	1 25
Conveyer boom builders,	2 30	2 01
Cradle hands and pinmen,	2 10	2 20
Repairmen,		2 10
Engineers,		1 80
Blooming Department.		
Foreman,		3 25
Heaters,	3 25	3 21
Heater's helpers,	2 50	2 21
Door hands,		1 50
Buggymen,		1 60
Markers,		1 35
Rollers,	3 25	3 25
Assistant rollers,	2 50	2 21
Screwmen,	2 50	2 42
Catchers,		2 00
Shearsmen,	2 50	2 —
Levermen,	2 25	2 25
Hammermen,	2 50	2 25
Engineers,		1 10
Drillers,	2 00	2 21
Chippers,	2 25	1 81
Telegraphers,		2 25
Straightening press hands,	1 75	1 65
Inspectors,	1 25	2 25
Recorders,		2 42
Drillsmiths,		2 70
Ball holders,	2 21	2 50
Engineers,		1 25
Soaking Pit Department.		
Foreman,	1 75	2 25
Ashmen,	2 20	1 65
Firemen,	2 65	2 65
Steam Producing Department.		
Foreman,		2 20
Water tenders,	1 25	1 —
Assistant water tenders,		1 65
Muckers,		2 30
Ashmen,	1 20	1 40
Coal heavers,		1 30
Firemen,	2 65	1 25
Pump Department.		
Foreman,		1 50
Engineers,	4 50	4 00
Helper's helpers,	1 50	1 80
Door hands,	1 40	1 20
Buggymen,	2 25	2 25
Blacksmiths,	3 00	4 00
Tongsmen,	2 50	2 50
Hookers, &c.,	1 00	2 50
Engineers,		2 50

AVERAGE WAGES OF EMPLOYEES—Continued.

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Crucible and Other Steel.							
Steel melters,							
Steel melters' helpers,							
Hammermen,							
Hammermen's helpers,							
Engineers,							
Blacksmiths,							
Carpenters,							
Machinists,							
Millwrights,							
Firemen,							
Laborers,							
Shearsmen, straighteners, and bundlers,							
Boys,							
Wire drawers,							
Other employees,							
Iron Foundries.							
Foremen,							
Iron molders,							
Machinists, (best,)							
Machinists, (ordinary,)							
Boiler-makers,							
Riveters,							
Holders-on,							
Flangers,							
Blacksmiths,							
Blacksmiths' helpers,							
Engineers,							
Pattern-makers,							
Carpenters,							
Laborers,							
Other employees,							
Boys,							
Window Glass.							
Foremen,							
Blowers of double-strength glass,							
Blowers of single-strength glass,							
Gatherers of double-strength glass,							
Gatherers of single-strength glass,							
Flatteners,							
Cutters,							
Assorters of glass,							
Layers-in—Flattening department,							
Layers-out—Flattening department,							
Leer-tenders—Flattening department,							
Batch-mixers,							
Lime-sifters,							
Sand-sifters,							
Master teazers,							
Master teazers' helpers,							
Teazers,							
Coal-wheelers,							
Pot-makers,							
Pot-makers' assistants,							
Glass-packers,							
Glass-packers' assistants,							
Laborers,							
Teamsters,							
Other employees,							
Flint and Green Glass Ware.							
Pressers, first-class,							
Pressers, second-class,							
Pressers, third-class,							
Handlers,							
Finishers,							
Foot finishers,							
Mold, chimney, and other blowers,							
Gatherers,							
Snapping and carrying boys,							
Mold-makers,							
Mold-cleaners, greasers, and holders,							
Mixers,							
Teazers,							
Leer-tenders,							
Cutters,							
Grinders,							
Roughers,							
Shearers,							

AVERAGE WAGES OF EMPLOYEES—Continued.

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Flint and Green Glass Ware—Continued.							
Stopper-makers,						$4 00	$5 00
Stopper-grinders,						2 00	2 50
Selecters,						1 75	2 25
Engravers,					$2 27	2 33	2 70
Mold papering, packing, and other boys,						65	64
Packers,					2 06	1 70	1 94
Engineers,						2 25	2 28
Laborers,					1 53	1 35	1 37
Other employees,					2 03	2 06	1 98
Lumber.							
Foremen,				$3 27	1 96	2 25	2 61
Sawyers,				1 69	1 59	1 97	2 11
Setters, edgers, and filers,				2 32	1 27	1 59	1 80
Engineers,				3 17	1 41	1 64	1 85
Laborers,				1 41	1 17	1 30	1 49
Boys,				1 43	64	74	80
Lath sawyers and binders,				1 50		1 45	1 77
Other employees,				1 36	1 36	1 59	1 83
Tanneries.							
Tanners,		$1 70	$1 58	1 78	1 55	1 62	1 45
Beam hands,	$1 43	1 54	1 46	1 34	1 27	1 42	1 43
Yard hands,	1 27	1 32	1 30	1 11	1 11	1 24	1 27
Rollers and spongers,	1 42	1 48	1 33	1 25	1 27	1 34	1 37
Bark-grinders,	1 37	1 20	1 13	1 06	1 06	1 07	1 23
Laborers,	1 40	1 20	1 13	1 02	1 04	1 08	1 29
Engineers,	1 45	1 57	1 62	1 48	1 28		1 49
Curriers,		1 73	1 55	1 62	1 36		1 62
Splitters,			2 75	2 50	1 77		2 03
Shavers,		2 20	2 00	1 49	1 75		2 08
Table-hand scourers,		1 50	1 40	1 25	1 30		1 36
Blackers,		1 50	1 40	1 37	1 17		1 87
Finishers,		1 75	1 40	1 25	1 24		1 62
Other employees,	1 38	1 44	1 63	1 51	1 31	1 53	1 56
Textile Fabrics.							
Overseers,				2 33	2 30	2 53	2 83
Skilled workmen,				1 62	1 42	1 78	1 98
Unskilled workmen,				1 19		1 05	1 21
Boys under 16 years,				66	59	58	64
Women and girls over 15 years,				97	88	91	99
Girls under 15 years,				52	57	54	55
Engineers,				2 23	1 70	1 92	2 17
Blacksmiths,				2 18	1 70	1 97	2 10
Carpenters,				2 04	1 70	1 92	2 04
Laborers,				1 30		1 20	1 39
Other employees,				1 67	1 41	1 87	1 82
Miscellaneous Industries.							
Foremen,					2 81	2 58	3 03
Skilled workmen,					1 91	1 82	2 08
Unskilled workmen,					1 22	1 18	1 30
Boys,					70	63	70

AVERAGE MONTHLY WAGES OF EMPLOYEES.

Railroads.—Conducting Transportation.							
Clerks,	54 39	53 71	53 41	47 81	54 65	52 20	49 07
Chief telegragh operators,	134 32	91 29	101 90	103 33	65 79	69 59	94 67
Telegraph operators,	40 70	44 97	45 11	36 39	36 18	39 60	38 85
Passenger and freight agents,	54 70	47 21	50 78	46 82	43 32	41 54	45 33
Depot masters,	61 47	61 68	72 77	45 33	69 39	71 42	73 50
General dispatcher and train master,	96 20	89 62	83 36		79 36	90 98	104 90
Train dispatchers,	92 39	87 31	78 39	66 06	72 65	80 00	71 83
Conductors, passenger,	81 26	78 02	72 81	78 70	68 52	70 58	73 48
Conductors, freight,	65 33	59 41	64 08	55 64	54 85	62 70	63 64
Brakemen, passenger,	48 77	45 33	44 46	41 51	37 85	42 00	46 87
Brakemen, freight,	48 77	45 33	44 31	41 51	37 85	42 00	43 19
Janitors,					32 00	31 26	32 54
Watchmen,	39 07	39 14	39 13	37 85	35 00	32 95	35 39
Baggage masters,	49 54	44 84	45 53	41 38	43 90	48 75	47 23
Switch tenders,	35 75	39 23	39 25	47 08	35 78	42 27	39 48
Baggage porters,		31 98			33 00	35 33	36 80
Policemen,				45 00	43 33	50 80	46 46
Gate and flagmen,	29 38	33 66			39 00	40 16	46 44
Cleaners,			33 15	22 50	28 45	29 05	23 71

AVERAGE MONTHLY WAGES OF EMPLOYEES—Continued.

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Railroads.—Conducting Transportation—Continued.							
Messengers,					$18 83	$21 05	$17 11
Weighmasters,	43 42	47 93	50 00	50 00	42 00	47 15	54 47
Laborers,					32 44	32 44	34 52
Blacksmiths,					47 00	47 00	53 45
Blacksmiths' helpers,					38 00	38 00	38 70
Warehousemen,					31 80	35 70	36 16
Cargo inspectors,					44 00	50 00	46 74
Railroads.—Maintenance of Way.							
Supervisors,		$77 50	$90 00		75 00	75 95	81 18
Track foremen,	$50 27	49 95	46 50	$41 33	43 00	43 18	47 01
Trackmen,	34 23	32 46	29 68	26 68	26 00	29 83	31 21
Switchmen,					34 00	39 16	38 46
Conductors, work trains,					65 00	69 00	67 68
Flagmen, work trains,					31 40	33 61	38 29
Brakemen, work trains,					33 62	36 84	41 29
Pumpers,					35 50	38 64	40 93
Master carpenters,					90 00	81 69	90 89
Foremen, carpenters,		67 92			65 00	64 90	67 45
Carpenters,	50 18	52 59	51 32	44 13	52 00	46 05	48 94
Foremen, laborers,					39 00	51 66	44 82
Laborers,	35 56	35 84	32 23	30 87	31 20	29 90	29 83
Foremen, masons,		80 08			70 20	73 18	70 87
Masons,	54 96	63 45	56 81	45 50	55 90	56 69	56 35
Foremen, quarrymen,		60 30				56 25	43 58
Quarrymen,					31 20	32 21	34 11
Blacksmiths,					65 00	60 70	53 37
Blacksmiths' helpers,					37 44	38 64	34 79
Painters,					46 80	45 93	52 60
Telegraph repairmen,	65 00	55 36	61 54	50 47		44 33	47 84
Motive Power.							
Master mechanics,	146 27	137 82	120 15	92 83	114 46	123 83	117 11
General foremen,	99 75	86 91	91 12	63 44	80 91	103 00	95 43
Foremen,					75 05	73 43	76 36
Road foremen of engines,	64 29	61 83	77 66	64 02	80 52	112 62	106 16
Motive power clerks,	54 39		57 76	47 81	54 58	74 31	71 22
Engine preparers,			72 00		45 76	47 10	47 20
Assistant engine preparers,					36 76	40 86	33 60
Car inspectors,		47 97			38 10	41 52	42 09
Car cleaners,		31 92			27 00	27 63	29 90
Riggers,	50 70	42 25			51 30	50 73	51 01
Watchmen,					34 50	37 42	39 83
Machinists,	55 24	56 86	51 41	47 88	54 13	54 44	55 35
Machinists' helpers,			42 20		36 30	38 81	32 81
Machinists' apprentices,		23 53	33 80		22 88	20 30	21 65
Blacksmiths,	53 83	57 11	52 18	50 20	53 70	56 98	54 92
Blacksmiths' helpers,	40 80	41 27	34 94	27 00	33 02	36 73	35 76
Blacksmiths' apprentices,		17 94			15 00	14 34	26 61
Boiler-makers,	53 30	59 38	56 27	55 10	52 20	57 93	61 63
Boiler-makers' helpers,		20 80	41 60		34 50	37 57	43 45
Tinners,	48 19	59 63	54 63	44 60	50 40	55 00	52 85
Tinners' helpers,			39 00		28 60	31 67	33 94
Tinners' apprentices,					26 00	16 81	27 65
Coppersmiths,	53 76	67 06	62 92	56 81	53 10	61 55	58 67
Carpenters,					46 80	49 62	47 59
Carpenters' apprentices,		18 72			25 48	21 50	24 38
Laborers, carpenter shop,		39 00			28 60	33 20	31 69
Trimmers,					52 00	54 12	52 50
Painters,	53 04	55 66	51 93	47 46	43 94	47 20	50 14
Painters' apprentices,		18 98			18 20	20 50	22 98
Laborers, paint shop,					28 60	34 10	32 31
Oil distributors,			50 00		34 20	36 57	38 89
Coal men,					32 70	34 03	33 53
Grinders,					33 80	37 20	50 42
Laborers,					28 60	32 05	31 29
Engine cleaners,	33 02	37 24	35 11	29 73	33 00	32 50	34 00
Stationary engineers,	64 74	51 95	48 00	49 14	37 80	49 70	44 72
Stationary firemen,		46 28	44 20		37 80	38 19	41 08
Passenger enginemen,	83 63	80 23	82 37	83 77	88 21	85 43	89 93
Passenger firemen,	49 93	46 38	50 19	40 87	43 80	49 36	50 12
Freight enginemen,	83 63	80 23	73 41	67 00	70 00	72 80	78 55
Freight firemen,	49 93	46 38	50 37		42 00	44 33	47 82
Distributing enginemen,					70 00	71 66	72 07
Distributing firemen,					40 00	41 63	44 03
Yard enginemen,			97 20		72 00	74 20	72 94
Yard firemen,			67 20		42 80	44 89	45 51

EMPLOYEES'

A TABLE *showing the average daily and yearly earnings and expenditures,*
reau, for the year ended

No. of return.	OCCUPATION.	COUNTY.	Age.	Years in present employ.	Hours worked per day.	Number of days employed during the year.	PIECE WORK.	
							Price paid per—	Number of pieces constituting a day's work.
1	Miner, (coal,)	Allegheny,	49	27	11	170	*g* $3 50	*h*75
2	Do.	do.	43	. .	10	. .		. . .
3	Do.	do.	42	3	14	200	*g* 4 00	*h*75
4	Do.	do.	37	1	14	170	*g* 4 00	*h*75
5	Do.	do.	40	4	11	200	*g* 4 00	*h*50
6	Do.	Beaver,	28	15	13	200	.	*i*2
7	Do.	Blair,	47	16	9	308	65	*i*2½
8	Do.	Cambria,	51	15	9	. . .	49	. . .
9	Do.	do.	35	. . .	10	. .	50	*i*3
10	Do.	do.	34	1	9	310	65	*i*3½
11	Do.	do.	59	3	11	270	55	*i*3½
12	Do.	Clarion,	41	. . .	12	200	80	*i*2
13	Weighmaster,	Clearfield,	27	*a*5	10	200	. . .	. . . .
14	Miner, (coal,)	do.	32	4	10	225	50	*i*4
15	Do.	do.	34	2	10	140	50	*i*5
16	Do.	do.	34	2	10	200	50	*i*6
17	Do.	Elk,	28	4	8	240	68	*i*3
18	Do.	Fayette,	33	*a*4	10	115	*g* 3 50	*h*75
19	Driver,	Huntingdon,	35	1	9	250	.	. . . .
20	Miner, (coal,)	Jefferson,	42	2	10	208	75	. . . .
21	Do.	McKean,	38	4	9	300	80	*i*2½
22	Do.	Mercer,	28	1	10	208	80	*i*2¼
23	Do.	Somerset,	36	4	13	306	55	*i*4
24	Do.	Tioga,	50	10	10	249	60	*i*3
25	Do.	do.	48	16	10	275	60	*i*3⅓
26	Do.	Westmoreland,	35	*a*6	. .	215	40	7
27	Do.	do.	47	6	10	225	80	*i*3¼
28	Do.	do.	53	5	10	254	. . .	. . . . .
29	Do.	do.	35	8	10	275	. . . .	. . . . .
30	Do.	Lackawanna,	32	. . .	8	223	. . .	. . . .
31	Do.	do.	33	1	9	200	. . . .	. . . . .
32	Do.	do.	50	*a*7	10	180	. . . .	. . . . .
33	Do.	Luzerne,	32	6	10	222	. . .	. . . . .
34	Do.	do.	46	7	10	230	. . . .	. . . .
35	Do.	do.	36	15	10	231	. .	. . .
36	Do.	do.	40	7	10	250	93	5
37	Do.	Northumberland,	36	10	9	205	65	3
38	Do.	do.	57	5	10	260	70	3
39	Do.	do.	39	3	10	275	20	8
40	Do.	Schuylkill,	45	3	10	211	81	3
41	Do.	do.	57	8	10	155	80	2½
42	Do.	do.	40	8	8	225	. . . .	. . . . .
43	Do.	do.	34	11	10	264	. . . .	. . . . .
44	Do.	do.	35	1	10	256	. . .	. . . . .
45	Blast-furnace keeper,	Mercer,	44	3	12	345	. . . .	. . .
46	Cinderman,	Montgomery,	43	1	12	365	.	. . . .
47	Puddler,	Allegheny,	. .	7	10	273	5 50	*c*2,500
48	Do.	do.	33	11	10	240	5 50	*c*2,400
49	Do.	do.	51	15	11	170	5 50	*c*2,500
50	Do.	do.	43	1	10	. .	5 50	*c*2,450
51	Do.	do.	36	11	10	233	5 50	*c*2,350
52	Do.	do.	30	6	10½	260	5 50	*c*2,350
53	Do.	do.	38	2	9	230	5 50	*c*2,500
54	Do.	do.	40	20	10	200	5 50	*c*2,500
55	Do.	do.	36	1	9	224	5 50	*c*2,500
56	Do.	do.	45	3	10	230	5 50	*c*2,450
57	Do.	do.	32	8	11	190	5 50	*c*2,375
58	Puddler, (steel,)	do.	40	8	10	250	8 25	*c*2,050
59	Puddler,	do.	30	7	9	235	5 50	*c*2,500
60	Do.	do.	25	6	. . .	200	5 50	. . . . .

a Month. *c* Pounds. *g* Per 100 bushels. *h* Number of bushels. *i* Tons.

RETURNS.

etc., of employés in various industries, compiled from returns to the Bu- December 31, 1881.

Daily earnings.	Earnings for 1881.	How often are wages paid?	FAMILY. Adults.	FAMILY. Children.	Earnings of family, exclusive of yourself, for the year.	Total earnings of the family, including yourself, for the year.	Total expenses for the year.	EXCESS OF Earnings over expenses.	EXCESS OF Expenses over earnings.	No. of return.
$2 62		Monthly,	2	7		$1,152 25	$1,072 50	$79 75		1
			2	8						2
3 00	$600 00	Monthly,	2	2		600 00	600 00			3
3 00	510 00	do.	2	7		510 00	478 00	32 00		4
2 00	400 00	do.	2	5		400 00	400 00			5
2 00	400 00	do.	2	4		400 00	475 00		$75 00	6
1 50	462 00	do.	2	6	$238 00	700 00	700 00			7
1 60	460 00	do.	2	7	540 00	1,000 00				8
1 50	360 00	do.	2	2		360 00	326 00	24 00		9
2 25	697 50	do.	2	4		697 50	500 00	197 50		10
2 00	540 00	do.	2	1	360 00	900 00	828 00	72 00		11
1 60	320 00	do.	2	6	280 00	600 00	600 00			12
1 80	360 00	do.	2	3		360 00	360 00			13
2 00	450 00	do.	2	2		450 00	430 00	20 00		14
2 50	350 00	do.	2	4		350 00	350 00			15
3 00	600 00	do.	2	5	300 00	900 00				16
2 00	480 00	do.	2	4		480 00	458 00	22 00		17
2 62	301 30	do.	2	4		301 30	301 30			18
1 50	375 00	do.	2	4		375 00	358 00	17 00		19
2 03	422 24	do.	2	3	213 42	635 66	530 00	105 66		20
2 00	600 00	do.	2	8	150 00	750 00	750 00			21
1 80	374 40	do.	2	2		374 40	345 00	29 40		22
2 20	673 20	do.	2	2		673 20	491 00	182 80		23
1 80	448 20	do.	2	4	631 80	1,080 00	800 00	280 00		24
2 00	550 00	do.	2	6		550 00	550 00			25
2 80	602 00	do.	2	1		602 00	500 00	102 00		26
2 80	630 00	do.	2	6	122 75	752 75	687 75	65 00		27
3 00	762 00	do.	2	5						28
2 00	550 00	do.	2	2		550 00	496 00	54 00		29
1 40	312 20	do.	2	6		312 20	312 20			30
1 75	350 00	do.	1			350 00				31
2 50	450 00	do.	2	7	550 00	1,000 00	925 00	75 00		32
2 25	499 50	do.	2	3		499 50	450 00	49 50		33
2 75	632 50	do.	2	5	72 00	704 50	598 50	106 00		34
2 00	462 00	do.	2	4	158 00	620 00	531 00	89 00		35
2 50	625 00	do.	2	7		625 00				36
1 95	399 75	do.	2	5	50 00	449 75	500 00		50 25	37
2 10	546 00	do.	2	3	369 55	915 53	882 00	33 55		38
1 60	440 00	do.	2	6		440 00				39
2 00	422 00	do.	2	6		422 00	474 00		52 00	40
2 00	310 00	do.	2	5	210 00	520 00				41
2 00	450 00	do.	1							42
2 00	528 00	do.	2	7	112 72	640 72				43
2 50	640 00	do.	2	5		640 00	550 00	90 00		44
1 90	655 50	Two weeks,	2	7		655 50	475 00	180 50		45
1 50	547 50	Monthly,	2	7		547 50				46
3 64	993 72	Two weeks,	2	1		993 72	500 00	493 72		47
3 60	864 00	do.	2	4		864 00				48
3 60	612 00	do.	2	1		612 00				49
3 70		do.	2	1						50
3 47	819 50	do.	2	5	89 86	909 36	750 36	159 00		51
3 47	902 20	do.	2	1		902 20				52
3 50	805 00	do.	2	3						53
3 63	726 00	do.	2	3		726 00	726 00			54
3 78	846 70	do.	1			846 70				55
3 60	828 00	do.	1							56
3 25	617 50	do.	2			617 50	550 00	67 50		57
5 05	1,262 50	do.	2			1,262 50	750 00	512 50		58
3 63	853 05	do.	2	2		853 05				59
3 70	740 00	do.	2	1		740 00	650 00	90 00		60

EMPLOYEES'

No. of return.	Occupation.	County.	Age.	Years in present employ.	Hours worked per day.	Number of days employed during the year.	PIECE WORK.	
							Price paid per—	Number of pieces constituting a day's work.
61	Puddler,	Allegheny,	34	2	11	250	$5 50	*c*2,350
62	Do.	Armstrong,	45	1	12	200	5 50	*c*2,450
63	Do.	Berks,	38	3		214		*d*5
64	Do.	Cambria,	48	25	12	200		
65	Do.	Cumberland,	44	14	12	176	4 50	*c*2,400
66	Do.	Delaware,	26	7	11	260	5 50	
67	Do.	Lawrence,	45	7	10		5 50	*c*2,500
68	Do.	do.	29	*a*6	10	200	5 50	*c*2 500
69	Do.	do.	27	7	10		5 50	*c*2,240
70	Do.	Lehigh,	22	2	13	182	3 65	*c*2,240
71	Do.	Philadelphia,	44	1	12		4 95	
72	Puddler, helper,	Northumberland,	35	3	10	200		
73	Heater,	Allegheny,	28	2	9	234	71	*i*9
74	Do.	do.	36	14	10	275	72	*i*8
75	Do.	do.	36	5	11	240		
76	Do.	do.	48	3	12	260	70	*i*9
77	Do.	do.	46		8	240		
78	Do.	Perry,	55	30		250	71	*i*5
79	Heater, sheet,	Armstrong,	37	5	8	200		*i*2½
80	Heater, guide-mill,	Blair,	42	18	13		90	
81	Heater, nail-plate,	Cumberland,	45	15	*a*8	200	50	*i*6
82	Roller,	Lebanon,	30	14	8	220		
83	Do.	Philadelphia,	39	11	12	308		
84	Roller, bar-mill,	Allegheny,	41	13	10		70	
85	Roller, guide,	Philadelphia,	36	3	11		70	*i*10
86	Roller, sheet,	Allegheny,	27	6	8	275		
87	Do.	Armstrong,	45		10	150		*i*2½
88	Roller, nail plate,	Cumberland,	37	5	10	212	46½	*i*20
89	Rougher,	Mercer,	27	*a*5	11	208		*i*16
90	Do.	Perry,	33	7	11	231	27	*i*10
91	Roller, muck,	Lawrence,	51	7	11	270		
92	Hooker,	Cambria,	34	3	12	254		*i*100
93	Nailer,	Allegheny,	42	13	11	200		*k*15
94	Do.	Mercer,	35	6	11	150		*k*7
95	Nail feeder,	Lawrence,	26	4	11	200		*k*34
96	Pickler,	Allegheny,	23	2	8	165		
97	Blacksmith,	do.	27		10	300		
98	Do.	do.	40	3	10	300		
99	Do.	Bradford.	51	16	10	312		
100	Do.	Northumberland,	37	3	10	250		
101	Do.	Philadelphia,	29	4	10	313		
102	Cabinet-maker,	Erie,	27	8	10	300		
103	Do.	Clinton,	29	1	10	300		
104	Do.	Lycoming,	33	1	10	246		
105	Car inspector,	Perry,	45	13	12	360		
106	Do.	Somerset,	45	7	12	365		
107	Carpenter,	Armstrong,	41	18	12	300		
108	Do.	Beaver,	43	5	10	313		
109	Do.	Blair,	43	13	10	300		
110	Do.	Bradford,	36	1	10	246		
111	Do.	do.	48		10	270		
112	Do.	Chester,	46		10	216		
113	Do.	Cumberland,	50		10	250		
114	Do.	Lycoming,	44		10	300		
115	Do.	McKean,	43	2	10	313		
116	Do.	Philadelphia,	56	24	10	300		
117	Caulker,	Allegheny,	25	8	10	298		
118	Cigarmaker,	Armstrong,	35					
119	Do.	Lycoming,	54	3	10	290		
120	Dyer,	Montgomery,	29	10	10	300		
121	Engineers,	Allegheny,	29	7	12	300		
122	Do.	Cameron,	34	7	10	300		
123	Engineers, stationary,	Lycoming,	53	13	11	216		
124	Do.	Montour,	56	2	12	324		
125	Do.	Northumberland,	25	*a*6	12	320		

a Month. *c* Pounds. *d* Heats. *i* Tons. *k* Kegs.

RETURNS—Continued.

Daily earnings.	Earnings for 1881.	How often are wages paid?	FAMILY. Adults.	FAMILY. Children.	Earnings of family, exclusive of yourself, for the year.	Total earnings of the family, including yourself, for the year.	Total expenses for the year.	EXCESS OF Earnings over expenses.	EXCESS OF Expenses over earnings.	No. of return.
$3 35	$837 50	Two weeks,	2	1		$837 50	$620 00	$217 50		61
3 30	660 00	do.								62
3 00	642 00	Monthly,	1							63
2 90	580 00	do.	2	4	$164 00	744 00	744 00			64
3 00	528 00	do.	1			528 00	350 00	178 00		65
3 27	850 20	Weekly,	3			850 20	810 00	40 20		66
3 75		Two weeks,	6							67
3 85	770 00	do.	3			770 00	664 00	106 00		68
3 40	845 00	do.	1			845 00				69
2 44	444 08	Monthly,				444 08				70
		Weekly,	5							71
1 50	300 00	Monthly,	2		75 00	375 00	340 00	35 00		72
4 64	1,085 76	Two weeks,				1,085 76	622 00	463 76		73
5 28	1,452 00	do.	5			1,452 00	1,200 00	252 00		74
5 00	1,200 00	do.	3	4		1,200 00				75
6 30	1,638 00	do.	5		1,170 00	2,808 00				76
4 00	960 00	do.	3							77
3 50	875 00	Monthly,	4			875 00	700 00	175 00		78
5 00	1,000 00	Two weeks,	5			1,000 00	750 00	250 00		79
	900 00	Monthly,	7			900 00				80
3 00	600 00	do.	3			600 00	386 00	214 00		81
3 00	660 00	do.	1							82
10 00	3,080 00	Weekly,	3			3,080 00				83
5 20	1,500 00	Two weeks,	6			1,500 00				84
7 00	1,200 00	do.	2			1,200 00	600 00	600 00		85
6 00	1,650 00	do.	3			1,650 00	850 00	800 00		86
7 00	1,050 00	do.	3			1,050 00	1,000 00	50 00		87
5 00	1,060 00	Monthly,				1,060 00	450 00	610 00		88
3 00	624 00	Two weeks,	2			624 00	550 00	74 00		89
2 70	623 70	Monthly,	2			623 70	471 91	151 79		90
6 98	1,884 60	Two weeks,	2			1,884 60				91
2 87	728 98	Monthly,	5			728 98	703 98	25 00		92
6 00	1,200 00	Semi-monthly,	6			1,200 00	1,000 00	200 00		93
4 00	600 00	Two weeks,	1			600 00				94
2 97	594 00	do.	2			594 00				95
	500 00	Semi-monthly,	1			500 00				96
1 50	450 00		2			450 00	383 00	67 00		97
3 00	900 00	Two weeks,	5			900 00	775 00	125 00		98
2 20	686 40	Monthly,	4			686 40	686 40			99
2 00	500 00	do.	4		51 06	551 06	400 00	151 06		100
2 00	626 00	Semi-monthly,	3			626 00	545 80	80 20		101
1 25	375 00	Monthly,	1			375 00	175 00	200 00		102
2 20	660 00	do.	3			660 00	574 00	86 00		103
2 00	492 00	do.	7			492 00	470 00	22 00		104
1 44	518 40	do.	4			518 40	425 00	93 40		105
1 50	547 50	do.	5			547 50				106
2 50	750 00		2		50 00	800 00	500 00	300 00		107
2 50	782 50		3			782 50	400 00	382 50		108
2 70	810 00	do.	4		590 00	1,400 00	1,000 00	400 00		109
2 25	553 50	do.	3			553 50	550 00	3 50		110
1 75	472 50	Semi-monthly,	3			472 50	372 50	100 00		111
2 00	432 00	Weekly,	5		50 00	482 00	455 00	27 00		112
2 00	500 00		5		150 00	650 00	555 00	95 00		113
1 75	525 00		2		75 00	600 00	400 00	200 00		114
2 75	860 75	Monthly,	3		75 25	936 00				115
2 25	675 00	Weekly,	4		245 00	920 00	920 00			116
3 00	894 00	Monthly,	1			894 00	398 00	496 00		117
	500 00		4			500 00				118
1 00	290 00	Weekly,	1		210 00	500 00	500 00			119
2 00	600 00	Monthly,	3			600 00	600 00			120
3 00	900 00	do.	2			900 00	600 00	300 00		121
2 00	600 00	do.	2			600 00	500 00	100 00		122
4 63	1,000 00	Weekly,	6	4	1,000 00	2,000 00	1,500 00	500 00		123
1 93	625 32	Monthly,	3		569 68	1,195 00	400 00	795 00		124
2 00	640 00	do.	2	2		640 00	500 00	140 00		125

EMPLOYEES'

No. of return.	OCCUPATION.	COUNTY.	Age.	Years in present employ.	Hours worked per day.	Number of days employed during the year.	PRICE WORK.	
							Price paid per—	Number of pieces constituting a day's work.
126	Engineers, stationary,	Perry,	49	18	12	345		
127	Firemen,	Schuylkill,	40	17	12	180		
128	Glass-blower,	Allegheny,	54	2	9	133		
129	Do.	do.	36	20	8	200		
130	Harness-maker,	Cumberland,	50		10			
131	Laborer,	Clarion,	35		10	192		
132	Do.	Fayette,	41	13	9	300		
133	Do.	Huntingdon,	45	4	9	250		
134	Do.	Sullivan,	43	3	11	235		
135	Machinists,	Allegheny,	38	7	10	310		
136	Do.	Lebanon,	36	13	10	300		
137	Do.	Perry,	33	11	10	310		
138	Millwright,	Cameron,	42	13	12	240		
139	Moulder,	Centre,	50	8	10	267		
140	Do.	Schuylkill,	31	1	10	310		
141	Do.	Union,	58	12	10	200		
142	Painter,	Chester,	35	3				
143	Do.	Clearfield,	30		10	235		
144	Do.	Erie,	54		10	175		
145	Do.	Franklin,	50	14	10	300		
146	Do.	Lackawanna,	47	1	10	185		
147	Do.	Monroe,	41	1	10	313		
148	Pattern-maker,	Allegheny,	33	15	10	300		
149	Do.	Clinton,	51	16	10	264		
150	Plasterer,	Elk,	46	12	10	260		
151	Do.	Philadelphia,	31		10	241		
152	Do.	Tioga,	56		10	200		
153	Sawyer,	Centre,	27		10			
154	Do.	Monroe,	37	18	12	250		
155	Shoemaker,	Allegheny,	36	8	10	300		
156	Stone cutter,	Erie,	38	11	9	283		
157	Stone mason,	Chester,	63		10	140		
158	Do.	Union,	43		11	175		
159	Tailor,	Allegheny,	56	4		300		
160	Do.	Bedford,	44	10	10	275		
161	Do.	Schuylkill,	21	2	13	308		
162	Tanner,	Monroe,	28	2	10	290		
163	Do.	Susquehanna,	49	28	10			
164	Tinner,	Lawrence,	33	3	10	312		
165	Do.	Northumberland,	37	a3	10	300		
166	Beamer,	Delaware,	42	9	10	288		
167	Weaver,	Somerset,	34	1	10	275		

a Month.

RETURNS—Continued.

Daily earnings.	Earnings for 1881.	How often are wages paid?	FAMILY. Adults.	FAMILY. Children.	Earnings of family, exclusive of yourself, for the year.	Total earnings of the family, including yourself, for the year.	Total expenses for the year.	EXCESS OF Earnings over expenses.	EXCESS OF Expenses over earnings.	No. of return.
$2 80	$966 00	Monthly,		6		$966 00	$650 00	$316 00		126
1 70	306 00	do.		3		306 00	274 00	32 00		127
3 00	399 00	Weekly,		3	$394 58	793 58	793 58			128
5 00	1,000 00	do.		3		1,000 00	1,000 00			129
	400 00			5		400 00	400 00			130
1 20	230 40	Monthly,				230 40	185 00	45 40		131
1 50	450 00	Weekly,		6	855 00	1,305 00	787 00	518 00		132
1 00	250 00	Monthly,		1		250 00	250 00			133
1 50	352 50			4	72 50	425 00	400 00	25 00		134
2 30	713 00	Two weeks,		4		713 00	530 00	183 00		135
2 00	600 00	Monthly,		4		600 00	600 00			136
2 20	682 00	do.		4		682 00				137
3 00	720 00	do.		5		720 00				138
2 00	534 00			3	118 60	652 60	400 00	252 60		139
2 55	790 50	Monthly,				790 50	646 00	144 50		140
2 00	400 00			4	600 00	1,000 00	625 00	375 00		141
	325 00	Weekly,		3	25 00	350 00	335 00	15 00		142
2 00	470 00			1		470 00	350 00	120 00		143
2 50	437 50			4		437 50				144
1 75	525 00	Weekly,	4	1		525 00	425 00	100 00		145
2 00	370 00	Two weeks,	3	2	45 00	415 00	375 00	40 00		146
2 00	626 00	Monthly,				626 00	474 00	152 00		147
3 00	900 00	Two weeks,		1		900 00	600 00	300 00		148
3 60	792 00	Monthly,		5	104 00	896 00	794 00	102 00		149
3 00	780 00			3		780 00	500 00	280 00		150
2 50	603 50	Weekly,		1		602 50	602 50			151
2 00	400 00	do.		3		400 00	300 00	100 00		152
	300 00	Monthly,		3		300 00	225 00	75 00		153
2 00	500 00	Weekly,		6		500 00	450 00	50 00		154
2 00	600 00	do.		3		600 00	500 00	100 00		155
3 00	849 00	do.		2		849 00	700 00	149 00		156
2 25	315 00	do.				315 00	285 00	30 00		157
2 00	350 00			4		350 00	305 00	45 00		158
2 00	600 00	Weekly,		1	300 00	900 00	850 00	50 00		159
1 00	275 00			8		275 00				160
1 17	360 36					360 36				161
1 40	406 00	Monthly,				406 00	350 00	56 00		162
	600 00	do.		6		600 00	600 00			163
2 50	780 00	Weekly,		3		780 00	600 00	180 00		164
2 00	600 00	do.		4		600 00	600 00			165
2 00	576 00	Monthly,		1		576 00				166
1 00	275 00	do.		3	85 00	360 00				167

AN EXHIBIT *of the average retail prices of Groceries, Provisions, &c.,*

County.	Flour, per barrel.		Flour, per bag, (forty-nine pounds.		Tea, per pound.		Coffee, (best Rio,) per pound.		Sugar, (light brown,) per pound.		Sugar, (granulated,) per pound.	
	1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.
1. Allegheny,	$6 82	$8 42	$1 72	$2 10	$0 80	$0 83	$0 24	$0 24	$0 09	$0 10	$0 11	$0 12
2. Armstrong,	5 50	8 13	1 60	1 87	94	79	23	22	9	9	11	12
3. Beaver,	6 25	8 00	1 50	1 95	75	75	23	20	10	10	10	. . .
4. Bedford,	5 20	7 00	1 30	1 80	74	. .	24	21	10	10	13	13
5. Berks,	6 33	. . .	1 62	1 89	65	75	25	25	8	9	11	12
6. Blair,	5 80	7 44	1 52	1 90	60	1 01	24	21	10	10	12	12
7. Bradford,	7 50	8 30	1 90	2 17	70	50	28	30	9	9	11	12
8. Butler,	5 60	.	1 40	1 75	60	70	23	20	10	10	12	12
9. Cambria,	7 00	8 55	1 63	2 12	69	78	25	23	11	10	13	13
10. Cameron,	. . .	8 22	. .	2 07	. .	67	. . .	35	. . .	11	. . .	12
11. Carbon,	. . .	. . .	1 70	. . .	1 20	. . .	26	. .	9	. . .	13	. . .
12. Centre,	6 20	6 50	1 55	1 80	1 00	88	23	20	11	9	18	11
13. Chester,	6 35	7 83	1 55	2 03	91	88	26	25	9	10	11	11
14. Clarion,	. . .	8 37	. .	2 16	. . .	79	. . .	22	. . .	11	. .	14
15. Clearfield,	6 25	8 00	1 69	2 00	88	76	26	24	10	11	13	11
16. Clinton,	. . .	8 50	1 85	2 17	75	80	26	35	10	10	12	13
17. Columbia,	6 00	. . .	1 60	1 80	95	. . .	28	20	10	10	13	12
18. Crawford,	6 00	. . .	1 60	. .	66	. .	21	. . .	10	. . .	11	. . .
19. Cumberland,	6 23	7 27	1 57	1 90	75	90	26	24	10	9	12	11
20. Dauphin,	6 26		1 64	.	68	. .	28	. .	10	. . .	11	. . .
21. Delaware,	8 75	9 25	. .	2 35	65	60	31	30	10	10	10	11
22. Elk,		8 33	1 90	2 06	60	63	28	22	9	10	11	12
23. Erie,	6 00	. . .	1 50	2 02	62	65	23	23	10	9	12	11
24. Fayette,	6 12	6 87	1 55	1 83	85	83	25	24	11	10	13	12
25. Forest,	. . .	. .	1 87	. . .	1 00	. . .	30	. . .	10	. . .	12	. . .
26. Franklin,	. . .	. . .	1 50	. . .	80	. . .	20	. .	10	. . .	12	. . .
27. Fulton,	5 00	.	1 42	. . .	80	. . .	20	. . .	10	. .	12	. .
28. Huntingdon,	6 22	7 90	1 57	1 98	71	70	25	23	10	10	13	13
29. Indiana,	. .	7 00	.	1 75		70	. . .	20	. . .	11	. . .	13
30. Jefferson,	7 20	8 05	1 80	2 02	75	70	25	22	8	. . .	13	. . .
31. Lackawanna,	7 07	9 20	1 92	2 22	61	54	28	35	10	10	11	13
32. Lancaster,	6 12	6 37	1 57	.	62	50	30	25	8	9	12	12
33. Lawrence,	. .	8 10	1 40	1 99	70	94	21	23	8	10	15	13
34. Lebanon,		7 75	. . .	1 90	. . .	62	. .	20	. . .	9	. .	12
35. Lehigh,	6 25		1 61	1 83	70	80	25	32	8	9	12	13
36. Luzerne,	7 29	9 12	1 81	2 25	63	58	29	29	10	11	12	11
37. Lycoming,	6 00	7 00	1 53	1 80	90	82	23	23	10	10	13	12
38. McKean,	8 50	. .	.	2 27	80	85	50	32	11	11	14	. 13
39. Mercer,	5 80	8 12	1 46	1 94	67	74	22	21	10	10	12	12
40. Monroe,		10 50	1 75	2 58	. . .	66	24	28	8	10	10	13
41. Montgomery,	6 75	7 75	1 61	2 00	74	85	28	35	9	10	11	14
42. Montour,	6 00	8 50	1 50	.	70	1 00	28	33	9	10	12	12
43. Northampton,	. . .	8 50	1 93	2 13	82	50	25	22	9	10	12	11
44. Northumberland,	7 06	8 43	1 69	2 13	65	56	26	25	9	10	12	12
45. Perry,	6 20	8 05	1 62	2 02	85	86	28	25	10	9	12	12
46. Philadelphia,	8 37	9 50	2 22	2 37	57	76	34	29	9	9	11	11
47. Schuylkill,	6 33	8 58	1 61	2 15	61	61	28	29	9	10	12	12
48. Snyder,	. . .	.	1 50	.	87	. .	25	. . .	9	. . .	12	. . .
49. Somerset,	. . .	8 00	1 54	1 82	88	82	26	27	11	10	14	14
50. Sullivan,	. . .	7 00	2 20	1 80	67	75	25	20	9	10	12	13
51. Susquehanna,	. . .	8 80	.	.	. . .	80	. . .	34	. . .	9	.	11
52. Tioga,	7 06	8 27	1 75	2 08	61	63	30	26	10	10	12	12
53. Union,	.	6 00	1 35	1 62	1 00	70	25	21	10	10	12	12
54. Warren,	8 60	8 00	1 70	2 00	85	62	27	25	10	10	12	10
55. Washington,	. .	.	. . .	1 90	. . .	65	. . .	20	. . .	9	.	11
56. Westmoreland,	6 69	8 40	1 60	2 02	66	70	24	24	10	10	12	11
57. Wyoming,	6 00	. . .	1 60	. . .	50	. . .	23	. . .	10	. . .	12	. . .
58. York,	5 87	. . .	1 55	. . .	75	. .	25	. . .	9	. .	12	. . .

for the years 1880 and 1881, compiled from employee's returns to the Bureau.

Ham, per pound.		Shoulder, per pound.		Lard, per pound.		Butter, per pound.		Fresh beef, per pound.		Other fresh meats, per pound.		Average house rent, per month.		Average number of rooms.	Number.
1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.		
$0 13	$0 16	$0 10	$0 12	$0 11	$0 15	$0 32	$0 42	$0 13	$0 15	$0 11	$0 13	$8 98	$10 58	4	1
11	15	9	13	10	12	24	36	10	11	10	9	10 00	7 69	6	2
14	15	11	12	12	15	31	35	22	15	10	12	5 00	3 00	3	3
13	14	8	10	8	10	20	26	8	8	7	7	. . .	. . .	4	4
13	16	10	13	10	14	29	38	12	14	11	11	4 25	. . .	5	5
13	16	10	12	12	17	29	39	14	11	10	15	7 67	. .	6	6
12	15	9	12	12	15	25	31	13	15	12	. . .	8 33	8 12	10	7
14	16	12	12	9	10	25	35	12	12	8	11	. . .	5 00	6	8
13	16	9	11	12	16	28	36	10	14	8	13	4 50	4 62	4	9
. . .	14	. . .	11	. . .	15	. . .	35	. . .	13	. . .	13	. . .	. . .	5	10
18	. . .	14	. . .	12	. . .	25	. . .	14	. . .	10	. .	6 00	. . .	5	11
13	12	9	9	9	10	25	28	13	16	8	16	6 00	. . .	5	12
13	16	10	12	10	13	35	44	15	16	9	11	5 78	5 87	5	13
. . .	15	. . .	13	. . .	14	. . .	32	. . .	12	. . .	12	. . .	2 00	4	14
13	16	10	14	11	16	32	39	13	13	11	12	6 00	6 31	5	15
12	14	9	13	12	17	32	40	14	18	. . .	15	10 00	12 00	6	16
13	16	10	14	11	12	27	30	13	11	10	. . .	3 68	. . .	5	17
11	. . .	9	. . .	10	. . .	26	. . .	7	. . .	9	. . .	. . .	. . .	4	18
15	14	10	10	10	16	27	33	11	12	9	11	. . .	8 66	6	19
13	. . .	8	. . .	10	. . .	27	. . .	12	.	11	. . .	11 14	. .	6	20
12	16	10	14	12	15	42	50	16	18	15	13	7 00	13 00	6	21
12	13	11	11	. .	13	30	35	16	12	12	11	. . .	3 00	5	22
14	13	9	11	10	15	27	29	13	11	10	12	2 00	. . .	7	23
15	16	9	13	10	18	27	39	13	11	10	11	3 00	8 00	6	24
14	. . .	. . .	. . .	12	. . .	36	. . .	12	. . .	. . .	. . .	. .	. .	5	25
10	. . .	7	. . .	8	. . .	20	. .	12	. . .	12	. . .	. . .	. .	. .	26
12	. . .	10	. . .	8	. . .	19	. .	8	. . .	8	. .	2 00	. .	. .	27
13	18	9	14	10	17	23	28	10	11	9	10	4 31	4 50	5	28
. . .	12	. . .	10	. . .	8	. . .	28	. .	8	. . .	7	. . .	. . .	5	29
12	15	10	13	8	13	25	37	8	12	6	15	6 25	6 00	6	30
12	15	11	12	11	16	29	32	13	15	12	14	7 00	6 50	6	31
15	14	10	10	10	10	25	26	13	13	13	13	8 93	6 00	5	32
12	16	9	14	10	15	27	36	12	14	9	11	13 25	7 00	4	33
. . .	15	. . .	12	. . .	14	. . .	33	. . .	15	. .	. . .	. .	5 00	4	34
13	15	10	11	12	15	33	36	15	16	14	14	5 50	6 50	4	35
14	15	11	12	12	15	32	36	15	14	13	18	5 92	5 75	5	36
12	17	9	15	11	14	25	32	12	13	8	10	4 38	. . .	7	37
13	15	11	14	12	16	35	34	12	12	10	. . .	4 50	. .	5	38
16	13	9	13	11	15	26	34	12	12	11	10	3 95	5 00	4	39
. . .	16	. . .	12	10	16	25	35	10	13	. . .	13	. . .	6 00	8	40
13	15	11	12	11	15	36	45	15	14	15	15	9 33	9 00	7	41
12	14	10	. . .	11	14	30	40	12	15	12	. . .	5 00	. . .	7	42
13	18	10	15	12	16	31	34	14	15	12	. . .	6 00	. . .	6	43
13	16	9	11	11	16	29	39	12	13	11	13	6 03	6 96	5	44
12	15	9	11	10	14	25	32	12	13	10	13	4 42	5 07	6	45
13	18	12	12	11	15	43	51	19	18	13	15	11 83	10 12	5	46
14	17	8	12	11	16	31	41	14	16	11	15	5 53	5 58	5	47
14	. . .	9	. . .	7	. .	20	. . .	6	. .	8	. . .	. . .	. .	4	48
14	15	9	10	11	16	26	30	12	10	10	10	8 33	. . .	4	49
13	16	9	13	12	14	25	27	12	8	7	8	2 00		5	50
. .	16	. . .	13	. . .	16	.	32	. .	11	. . .	. . .	. . .	. .	. .	51
13	16	10	14	13	15	27	32	10	11	8	13	4 62	5 66	6	52
10	16	8	12	6	11	25	29	12	10	. . .	13	4 25	. . .	6	53
12	14	10	13	11	14	24	30	7	12	9	11	. .	. . .	7	54
. . .	17	. . .	13	. . .	16	. . .	38	. . .	12	. . .	. . .	. .	. . .	4	55
12	15	9	12	10	14	29	38	11	12	10	14	5 56	6 66	4	56
12	. . .	10	. . .	10	. . .	22	. . .	7	. . .	8	. . .	. . .	. . .	. .	57
14	. .	10	. . .	9	. . .	24	. . .	11	. . .	10	. . .	8 06	. . .	5	58

PAYMENT OF WAGES.

The long standing protest made by the workingmen of this State against the payment of wages, earned and due, in anything but cash, is still heard. The methods and plans devised and praetieed, more especially in the mining distriets, of morally and otherwise compelling labor to aeeept payment in "truck" or store goods, was dwelt upon at some length in the report of 1878 and 1879. Sinee then legislation has been invoked, and upon our statute books is now found law, which, upon its passage, was expected by many, would be instrumental in wiping out the evil, and inaugurate payments in lawful money only, a system long desired by workingmen in general. In this, however, they have been disappointed, as that desired result has not been aecomplished, for the "truek" system has, in no wise, abated, but continues in its old time vigor, thus confirming the opinion we have heretofore expressed, that all legislation upon this subjeet would prove futile. If the shrewdly devised methods, plans, and regulations adopted by employers and their managers, under the frequent guise of "accommodation, philanthropy, and benevolence," to pay wages due employés in high-prieed store goods, eannot be removed by eonstant agitation and exposition, we fear no law can be enacted whose provisions they will not, in some manner, evade. When we contemplate the lot of many, who being surrounded with large families, dependent upon them for their support, and whose wages are largely, if not wholly paid in store goods, of moderate, if not to say, inferior quality, and at priees extremely high, thus swallowing up their earnings and keeping them necessarily in a continued state of poverty and dependence, it is not to be wondered that in the midst of such injustiee eomes up a wail for relief, through the strong arm and power of law. Yet, when an effort is made to comply with their petition for relief, the individual and eollective rights of citizens are so interwoven into the fundamental institutions of our government, that, in justiee and equity to all, it is found impossible to define, by law, that one man or set of men shall not engage in a business, that as a matter of right, should be free to all. In response to the urgent and earnest demand of the workingmen of the State, but more espeeially of the miners of the bituminous eoal region, from whence comes the greatest complaint, the Legislature of 1881 passed the following aet, introduced by Senator Schnatterly, of Fayette:

AN ACT

To secure to operatives and laborers engaged in and about coal mines, manufactories of iron and steel, and all other manufactories, the payment of their wages at regular intervals, and in lawful money of the United States.

SEC. 1. *Be it enacted, etc.*, That from and after the first day of September, Anno Domini one thousand eight hundred and eighty-one, all persons,

firms, companies, corporations, or associations in this Commonwealth engaged in mining coal, ore, or other mineral, or mi ing and manufacturing them, or either of them, or manufacturing iron or steel, or both, or any other kind of manufacturing, shall pay their employés as provided in this act.

SEC. 2. All persons, firms, companies, corporations, or associations, engaged in the business aforesaid, shall settle with their employés at least once in each month, and pay them the amounts due them for their work or services in lawful money of the United States, or by the cash order, as described and required in section three of this act: *Provided*, That nothing herein contained shall effect the right of an employé to assign the whole or any part of his claim against his employer.

SEC. 3. That from and after the first day of September, Anno Domini one thousand eight hundred and eighty-one, it shall not be lawful for any person, firm, company, corporation, or associatio n, their clerk, agent, officer, or servant in this State, to issue for payment of labor any order or other paper whatsoever, unless the same purports to be redeemable for its face value in lawful money of the United States, bearing interest at legal rate, made payable to employé or bearer, and redeemable within a period of thirty days, by the person, firm, company, corporation, or association giving, making, or issuing the same; and any person, firm, company, corporation, or association engaged in the business aforesaid, their clerks, agent, officer, or servant, who shall issue for payment of labor any paper or order, other than the one herein specified, in violation of this section, shall be guilty of a misdemeanor, and upon conviction shall be fined in any sum not exceeding one hundred dollars, in the discretion of the court, which shall go to the common school fund of the district wherein the crime shall have been committed.

SEC. 4. That from and after the passage of this act, it shall be unlawful for any person, firm, company, corporation, or association engaged in mining or manufacturing, either or both, as aforesaid, and who shall likewise be either engaged, or interested directly or indirectly, in merchandising as owner or otherwise, in any money, per cent., profit, or commission arising from the sale of any such merchandise, their clerks, servants, officers, or agents, to knowingly and wilfully sell or cause to be sold to any employé any goods, merchandise, or supplies whatever, for a greater per cent. of profit than merchandise and supplies of like character, kind, quality, and quantity are sold to other customers buying for cash and not employed by them; and shall any person or member of any firm, company, corporation, or association, his or their clerk, agent, or servant, violate this section of this act, then and in that case the debt for goods so sold shall not be collectible against the employé so purchasing.

SEC. 5. That if any person, firm, company, corporation, or association shall refuse, for the space of twenty days, to settle and pay any of their said employés at the intervals of time as provided in section two of this

act, or shall neglect or refuse to redeem any of cash orders herein provided for, within the time specified, if presented and suit should be brought for the amount overdue and unpaid, judgment for the amount of said claim proven to be due and unpaid with a penalty of one per centum of such amount added thereto for each and every month's delay, shall be rendered in favor of the plaintiff in such action: *Provided further*, That the cash order, herein provided for, given for the payment of labor, if the laborer continues to hold the same, in case of the insolvency of the company, or person, or firm, or corporation giving the same, such laborer shall not lose his lien and preference under existing law.

SEC. 6. All laws or parts of laws, inconsistent herewith, be and the same are hereby repealed.

APPROVED June 29, A. D. 1881.

The provisions of the foregoing act plainly contemplated the payment of cash monthly, and the prohibition of the issuance of store orders or checks —numerous samples of which were published in former report—by individuals, firms, or companies, to their employés. If, under any pretense, orders are issued for the payment of labor, the act provides it shall be redeemable for its face value in lawful money of the United States, bearing interest at legal rates, and made payable to employé or bearer, within a period of thirty days by the person, firm, company, corporation or association, giving, making, or issuing the same, otherwise they shall be guilty of a misdemeanor, and upon conviction subject to a penalty of $100. The passage of this bill, and its approval by Governor Hoyt would seem to indicate that the appeals of the miners were not in vain, and that a redress was at hand. It was natural, too, for the progressive merchant, as well as aspiring ones, to suppose that new opportunities would present themselves to enlarge or engage in legitimate business, and, in honorable competition, strive, at a fair profit, to furnish goods and provisions to workingmen at reasonable prices for cash in hand. As coal operators and other manufacturers were great adherents to the majesty of law, by always evoking its enforcement, when by others in any manner violated, and by strictly at all times demanding a fulfiment of every contract made, it was generally believed by workmen that they would obey the provisions of this act. But in this they were disappointed; for while they are, as a rule, obedient to law, the facts demonstrate that, in this case, if law has not been openly violated, it at least has been studiously avoided. During the fall of 1881, Mr. Augustus Stinner, of Allegheny county, an intelligent miner of many years' standing, and one of the commissioners appointed by Governor Hartranft in pursuance of joint resolutions passed by the Legislature of 1874 to examine the sanitary conditions of the bituminous coal mines, and who subsquently rendered material aid in drafting the present ventilation laws, was deputized by the bureau to visit the counties of Westmoreland, Washington, and Allegheny, including the Connellsville coke region, to gather facts and statistics relative to recent strikes, etc. During his tour Mr. Stinner took occasion to ascertain what firms kept stores in

connection with their works, and to what extent they conformed to the act of June 29, 1881. The following firms keep stores in connection with their coal and coke works:

Westmoreland county.

Stoner & Co.,	Cochran's,
Tarr & Dillinger,	Overholt & Co.,
Hurst & Co.,	Markle & Sons,
Dillinghurst & Rafferty,	Markle & Tinsman,
Hutchinson & Bro.,	J. Schoonmaker,
Boyle & Rafferty,	Schoonmaker & Co.

Fayette county.

Laughlin & Co.,	Youngstown Coke, Limited,
H. C. Frick & Co.,	Dunbar Furnace Company, Limited,
B. F. Kester & Co.,	Dunbar Furnace,
McClure & Rafferty,	Tintsman, at Mt. Braddock,
Stauffer Mines,	Mahoning Coke Company,
Sherrick Mines,	Collins' Mines,
Cleveland Coke Company,	Morgan, Lang & Co.,
William Moon & Co.,	Rend & Bro.,
Chicago and Connellsville Gas and Coke Company,	Cambria Iron Company,
William Moore & Co.,	Schoonmaker, Hickman Run railroad,
Chicago and Connellsville, Limited,	Cochran & Co.,
Lemont Furnace Company,	Ramey & Co.

The foregoing mines are located in what is known as the Connellsville Coke Region, a section of our State wherein nature has bounteously provided an article of coal that is preëminent for its coking and smelting qualities. The coke trade in this region has, within a few short years, simply become enormous, finding a ready market in every portion of our country—east, west, north, and south. With an active continued demand in times when money is plenty, and business done principally in cash, it cannot be well said that payments for wages can only be made at long intervals, and that in the meantime, stores must be kept merely as a matter of accommodation, in order that the workmen may secure the necessaries of life. True, there may be isolated exceptions, but, as a rule, they are established with a sole view of adding the profits derived from the sale of goods to their workmen, to the profits made upon the sale of coal and coke. As to the question of compulsion, it may be admitted that there are no posted notices, requiring employés to take their necessaries from company stores, neither are they compelled to sign an agreement that a part of their earnings, at least, must be taken in store goods; but, in many instances, the walk and conduct of bosses and superintendents about the works, store, and vicinity are such that the workingman is convinced that, unless his necessaries are obtained principally from their store, his pilgrimage in that locality is rapidly approaching its end.

Since the passage of the act alluded to, there has been, in many places, a withdrawal of the printed orders, and, in lieu thereof, each workman is provided with a "pass" book, upon the first page of which is written or printed the following, which the employé is required to sign before he can obtain any goods:

"The merchandise, rent, &c., charged in this book are taken in payment of wages due and to become due by . . . . . "

In this pass book are entered the goods purchased, together with the amount, which not only is information to the employé as to how he stands with the firm, but, also, as to the price of each article he buys. But there are places where even this is denied the workmen, for instead of an itemized account being rendered, they exhibit the aggregate only, thus leaving them in blissful ignorance of the price charged per pound or yard for the goods received. The scrip and order system, however, still flourishes in very many localities, specimens of which could readily be given, but inasmuch as samples of them were published in our report of '78 and '79, it is not now deemed necessary.

Considerable ingenuity has been displayed by some in an effort to conform with the law, and still maintain the semi-patronage of the employé. One plan is to require the employé to sign an order upon the firm for a given amount. This order is printed or written upon a card, as follows:

B . . . . . , PA.

. . . . . ,

Please pay myself $5, on account due at the next pay day, viz: (date.)

Prepayments hereon are to be indicated by punching the star opposite the figure on the margin hereof, showing the amount of such payments accepted.

. . . . . Company, (Limited.)

Per M.

JOHN . . . . .

These figures range from one cent to fifty cents, each one being punched as an equivalent is purchased in goods, and when added together aggregate the full amount of the order. Another, and somewhat novel plan is to allow the employé to secure a bill of goods; they then give him an order for the amount in cash upon the cashier in the store, who cashes the same; whereupon the employé faces about, pays the bill, and retires with his purchase. This is happily denominated the cash order system. Throughout the mining sections of Washington, Lawrence, Beaver, Clarion, Jefferson, Clearfield, and other counties, the system continues unabated, the law being either generally ignored or otherwise evaded by methods similar to those already indicated.

That it is uniformly unjust and oppressive, is probably untrue, as there are companies who keep stores, but, in no manner, make it compulsory upon their employés to deal with them, and who sell goods of excellent quality at ruling prices, but they are the exception and not the rule.

The methods so frequent in vogue at present to evade the act alluded to, is of itself sufficient evidence, that however odious to the workman, it is to the owners a source of considerable profit, which they seem bound to maintain. How long it will continue time alone can only determine. That it can be eradicated by law seems impossible, for not only have the efforts in this State proved of no avail, but, likewise, in the States of New Jersey and Ohio, where laws more stringent than ours, even, have been enacted, but there as here, their thousands of toilers continue steadily to be fleeced by the inordinate greed of the "pluck me" system, thus indicating plainly that through legislation there is no remedy.

So long as accessible towns, cities, and villages are peopled with independent merchants, who, by the untrammelled sale of goods for cash, are competing with each other, in legitimate trade and business, and so long as iron-workers, miners, and others are by these means convinced that cash paid them in hand, is virtually equivalent to an advance in wages of from five to twenty per cent., just so long will they agitate, plead, and expose; and if employers, realizing the facts, are not actuated by a sense of justice, to abrogate or modify the system, sooner or later, the imposition will be met with an assertion of manhood upon the part of the employés, by a refusal to longer labor unless they are paid regularly in the lawful money of the land, and with unimpaired freedom, permitted to spend it where they please and to the best advantage.

UNITED STATES CENSUS, 1881.

PENNSYLVANIA BY DISTRICTS.

The following statement exhibits the results of the first count of population according to the schedules returned to the Census Office by the enumerators of the several districts concerned.

The statement of the population in relation to any civil division is still subject to possible corrections by reason of the discovery of omissions or duplications of names in the lists of inhabitants returned.

Names of villages are indented and placed under the townships in which they are respectively situated, and the population of the township includes, in every case, that of all villages within it.

The villages marked with an *e* are unincorporated, and their population is given only approximately, as their limits cannot be sharply defined.

Places marked with a dagger (†) were not separately returned by the enumerators.

Adams County.

Berwick borough,		368
Berwick township,		514
Butler township, including village of Middletown,		1,405
e Middletown village,	96	
Conowago township, including village of McSherrytown,		1,211
e McSherrytown village,	439	
Cumberland township,		1,512
East Berlin borough,		510
Fairfield borough,		410
Franklin township, including the following villages,		2,499
e Arendtsville village,	248	
e Cashtown village,	134	
e Hilltown village,	41	
e McKnightstown village,	127	
e Mummasburg village,	104	
Freedom township,		544
Germany township, including village of Kingsdale,		1,002
e Kingsdale village,	92	
Gettysburg borough,		2,814
Hamilton township,		721
Hamiltonban township,		1,259
Highland township,		524
Huntington township,		1,642
Latimore township, including hamlet of Mechanicsville,		1,282
e Mechanicsville hamlet,	57	
Liberty township,		892
Littlestown borough,		913
Menallen township, including village of Bendersville,		2,008
e Bendersville village,	331	
Mount Joy township, including the following villages,		1,296
e Germantown village,	67	
e Two Taverns village,	39	

Mount Pleasant township, including the following villages,		2,138
e Bonneauville village,	112	
e White Hall village,	111	
New Oxford borough,		501
Oxford township,		851
Reading township, including village of Hampton,		1,382
e Hampton village,	189	
Straban township, including village of New Chester,		1,713
e New Chester village,	129	
Tyrone township,		985
Union township,		1,180
York Springs borough,		378
Total,		32,454

Allegheny County.

Aleppo township,		657
Allegheny City,		78,681
First ward,	6,225	
Second ward,	12,171	
Third ward,	14,002	
Fourth ward,	11,314	
Fifth ward,	7,626	
Sixth ward,	8,560	
Seventh ward,	3,958	
Eighth ward,	2,707	
Ninth ward,	3,349	
Tenth ward,	1,408	
Eleventh ward,	2,581	
Twelfth ward,	2,472	
Thirteenth ward,	2,308	
Baldwin township, including the following villages,		4,373
e Castle Shannon village,	306	
e Fair Haven village,	192	
e Spiketown village,	355	
Bellevue borough,		915
Beltzhoover borough,		564
Braddocks borough,		3,310
Chartiers borough,		1,852
Chartiers township,		3,346
Collier township,		1,698
Crescent township, including village of Shouston,		419
e Shouston village,	223	
East Deer township,		1,253
Elizabeth borough,		1,810
Elizabeth township, including village of Buena Vista,		3,361
e Buena village,	239	
Etna borough,		2,334
Fawn township,		636
Findley township, including the following villages,		1,471
e Clinton village,	211	
e Montour City village,	199	
Forward township,		1,740
Franklin township,		793
Glenfield borough, (formerly called Camden borough,)		538
Hampton township,		1,003
Harmer township, including village of Harmersville,		490

e Harmersville village,	193	
Harrison township, including the following villages,		2,352
e Avenue village,	415	
e Natrona village,	1,358	
Indiana township, including village of Dorseyville,		1,189
e Dorseyville village,	36	
Jefferson township, including village of Petersburgh,		3,227
e Petersburgh village,	145	
Kilbuck township, including village of Emsworth,		1,423
e Emsworth village,	335	
Knoxville borough,		393
Leet township,		890
Lincoln township,		1,646
Lower St. Clair township, including the village of Mt. Oliver,		2,329
e Mt. Oliver village,	1,883	
McCandless township,		1,010
McKeesport borough,		8,212
First ward,	2,946	
Second ward,	2,684	
Third ward,	2,582	
Mansfield borough,		1,172
Marshall township,		748
Mifflin township, including the following villages,		6,483
e Bull Run village,	350	
e Dravosburgh village,	850	
e Germantown village,	300	
e Homestead village,	592	
e Neel Road village,	100	
e Stoneburgh village,	350	
e Thompson Run village,	220	
Millvale borough,		1,824
Moon township, including village of Middletown,		1,389
e Middletown village,	81	
Neville township,		306
North Fayette township, including the following villages,		2,242
e Clifton village,	299	
e Fayette village,	42	
e Jeffreystown village,	42	
e Montour village,	286	
e Noblestown village,	299	
e Oakdale township, (part of; see South Fayette township,)	281	
North Versailles township, including the following villages,		3,051
e Port Perry village,	1,100	
e Saltsburgh village,	500	
O'Hara township, including the following villages,		2,498
e Claremont village,	413	
e Dutchtown village,	188	
e Goat Hill village,	47	
e Hoboken village,	317	
Ohio township,		737
Patton township, including village of Turtle Creek,		1,637
e Turtle Creek village,	455	
Penn township, including the following villages,		3,291
e Clarksville village,	169	
e Mill Town village,	64	
e Plum Creek village,	93	
e Sandy Creek village,	86	

Pine township,		773
Pittsburgh City,		156,381
First ward,	4,057	
Second ward,	2,792	
Third ward,	2,669	
Fourth ward,	3,598	
Fifth ward,	4,496	
Sixth ward,	7,359	
Seventh ward,	5,022	
Eighth ward,	5,840	
Ninth ward,	4,261	
Tenth ward,	2,996	
Eleventh ward,	6,494	
Twelfth ward,	7,806	
Thirteenth ward,	5,294	
Fourteenth ward,	7,758	
Fifteenth ward,	4,629	
Sixteenth ward,	6,080	
Seventeenth ward,	9,016	
Eighteenth ward,	2,683	
Nineteenth ward,	3,862	
Twentieth ward,	4,235	
Twenty-first ward,	5,272	
Twenty-second ward,	2,158	
Twenty-third ward,	2,702	
Twenty-fourth ward,	3,361	
Twenty-fifth ward,	5,096	
Twenty-sixth ward,	7,162	
Twenty-seventh ward,	4,574	
Twenty-eighth ward,	4,509	
Twenty-ninth ward,	3,717	
Thirtieth ward,	3,124	
Thirty-first ward,	1,966	
Thirty-second ward,	3,745	
Thirty-third ward,	1,301	
Thirty-fourth ward,	2,103	
Thirty-fifth ward,	1,876	
Thirty-sixth ward,	2,768	
Plum township,		1,721
Reserve township,		1,786
Richland township, including village of Bakerstown,		760
e Bakerstown village,	142	
Robinson township,		1,170
Ross township,		1,976
Scott township,		1,532
Sewickley borough,		2,053
Sewickley township,		392
Shaler township,		1,929
Sharpsburg borough,		3,466
Snowden township,		1,259
South Fayette township, including part of village of Oakdale,		1,765
e Oakdale village, (part of,)	226	
(See North Fayette township.)		
South Versailles township,		882
Springdale township, including village of Springdale,		738
e Springdale village,	456	
Sterrett township, including the following villages,		2,356

e Brushton village,	165	
e Edgewood village,	218	
e Wilkinsberg village,	1,529	
Stowe township,		867
Tarentum borough,		1,245
Union township,		2,367
Upper St. Clair township, including the following villages,		829
e Bridgeville village,	147	
e Pughtown village,	38	
e Sodom village,	59	
Verona borough,		1,599
Versailles township,		727
West Bellevue borough,		326
West Deer township,		1,438
West Elizabeth borough,		838
West Liberty borough,		865
Wilkins township,		4,426
NOTE—Oakdale village in North and South Fayette townships,	507	
Total,		355,759

Armstrong County.

Apollo borough,		1,156
Bethel township,		871
Boggs township,		1,010
Brady's Bend township, including village of Brady's Bend,		2,338
e Brady's Bend village,	1,010	
Burrell township,		1,047
Cowanshannock township, including the following towns,		2,611
e Atwood town,	149	
e Rural Valley town,	183	
Dayton borough,		579
East Franklin township, including village of Cowansville,		1,695
e Cowansville village,	77	
Elderton borough,		299
Freeport borough,		1,614
Gilpin township,		1,190
Hovey township,		589
Kiskiminetas township,		1,698
Kittanning borough		2,624
Kittanning township,		1,681
Leechburg borough,		1,123
Madison township, including the following villages,		1,950
e Deanville village,	69	
e Duncanville village,	30	
e Kellersville village,	58	
e Riverton village,	127	
Mahoning township,		1,930
Manor township,		1,508
Manorville borough,		327
North Buffalo township,		1,216
Parker City,		1,835
Perry township,		1,309
Pine township, including the following villages,		728
Mouth of Mahoning village,	146	
e Stewartson Furnace village,	299	
e Templeton village,	163	

Plum Creek township, including the village Whitesburgh,		1,996
e Whitesburgh village,	60	
Pork township,		715
Queenstown borough,		217
Red Bank township, including the following villages,		1,667
e Eddyville village,	52	
e Milton village,	100	
e Mount Tabor village,	23	
e New Salem village,	80	
e North Freedom village,	144	
South Bend township, including the following villages,		1,151
e Clayton, or Girty, village,	44	
e South Bend village,	54	
South Buffalo township, including the following villages,		1,715
e Clinton village,	127	
e Laneville village,	206	
e Mcenanville village,	52	
Sugar Creek township,		1,018
Valley township,		1,861
Washington township, including village of Wattersonville,		1,489
e Wattersonville village,	144	
Wayne township,		1,567
West Franklin township, including the following villages,		1,129
e Buffalo village,	77	
e Craigsville village,	106	
Worthington borough,		186
Total,		47,639

Beaver County.

Baden borough,		400
Beaver borough,		1,178
Beaver Falls borough,		5,104
Big Beaver township, including the village of Homewood,		1,437
e Homewood village,	267	
Borough township,		376
Bridgewater borough,		1,112
Brighton township,		815
Chippewa township,		908
Darlington borough,		247
Darlington township,		1,464
Economy township,		1,024
Fallston borough,		560
Frankfort Springs borough,		142
Franklin township,		739
Freedom borough,		623
Georgetown borough,		288
Glasgow borough,		573
Greene township,		1,249
Hanover township, including the following villages,		1,351
e Harshaville village,	32	
e Kendall village,	32	
Harmony township,		334
Hookstown borough,		308
Hopewell township, including the following villages,		1,081
e New Scottsville village,	62	

e New Sheffield village,	74	
Independence township, including the following villages,		829
e Balktown village,	45	
e Independence village,	97	
Industry township, including the village of Industry,		751
e Industry village,	499	
Marion township,		350
Moon township,		1,124
New Brighton borough,		3,652
Middle ward,	1,203	
North ward,	1,561	
South ward,	888	
New Galilee borough,		259
New Sewickley township, including the village of Unionville,		1,878
e Unionville village,	88	
North Sewickley township,		971
Ohio township,		1,376
Patterson township,		130
Phillipsburg borough,		458
Pulaski township,		903
Raccoon township,		1,092
Rochester township,		651
Rochester borough,		2,552
First ward,	1,398	
Second ward,	1,154	
St. Clair borough,		289
South Beaver township, including village of Black Hawk,		1,025
e Black Hawk village,	38	
Total,		39,603

Bedford County.

Bedford borough,		2,011
Bedford township, including the following villages,		2,685
e Boydstown village,	115	
e Wolfsburg village,	68	
Bloomfield township,		863
Broad Top township, including village of Riddlesburg,		1,446
e Riddlesburg village,	222	
Coaldale borough,		258
Colerain township,		1,022
Cumberland Valley township,		1,270
East Providence township, includiug the following villages,		1,503
e Gapsville village,	40	
e Rays Hill village,	80	
e White Hall village,	50	
East St. Clair township,		1,114
Everett borough,		1,247
Harrison township,		978
Hopewell township,		1,404
Hyndman borough,		354
Juniata township, including the village of New Buena Vista,		1,438
e New Buena Vista village,	121	
King township,		1,168
Liberty township, including the village of Stonerstown,		913
e Stonerstown village,	241	
Londonderry township,		1,202

Mann township,		834
Monroe township, including the following villages,		1,911
e Clearville village,	99	
e Robinsonville village,	21	
Napier township, including village of New Paris,		2,011
e New Paris village,	176	
Pleasantville borough,		227
Rainesburgh borough,		280
Saint Clairville borough,		144
Saxton borough,		369
Schellsburg borough,		359
Snakespring township,		716
Southampton township, including village of Cheneysville,		1,206
e Cheneysville village,	72	
South Woodbury township, including the following villages,		1,633
e Lafayetteville village,	48	
e New Enterprise village,	87	
Union township, including village of Pavia,		956
e Pavia village,	45	
West Providence township,		1,179
West St. Clair township,		951
Woodbury borough,		281
Woodbury township,		999
Total,		34,932

Berks County.

Albany township,		1,603
Alsace township,		1,523
Amity township, including the village of Amityville,		1,598
e Amityville village,	188	
Berne township, including the village of West Leesport,		2,176
e West Leesport village,	355	
Berneville borough,		405
Bethel township, including the following villages,		2,329
e Freystown village,	92	
e Millersburg village,	349	
Birdsboro borough,		1,705
Boyertown borough,		1,099
Brecknock township,		923
Caernarvon township, including village of Morgantown,		951
e Morgantown village,	166	
Center township,		1,627
Colebrookdale township, including the following villages,		1,150
Marysville village,	122	
New Berlin village,	209	
Cumru township, including the following villages,		3,064
e Goughlersville village,	75	
e Mohnsville village,	267	
e Shillington village,	136	
District township,		798
Douglass township,		1,151
Earl township,		1,141
Exeter township, including village of Stoneville,		2,469
e Stoneville village,	87	
Fleetwood borough,		802

Greenwich township, including the following villages,		1,988
e Lenhartsville village,	161	
e Smithville village,	50	
Hamburg borough,		2,010
Heidelberg township, including the following villages,		1,281
e Robesonia village,	284	
Robesonia Furnace village,	156	
Hereford township, including village Seisholtzville,		1,406
e Seisholtzville village,	82	
Jefferson township, including village Schaefferstown,		1,072
e Schaefferstown village,	83	
Kutztown borough,		1,198
Longswamp township, including the following villages,		3,426
e Farmington village,	74	
e Mertztown village,	99	
e Shamrock village,	135	
Lower Heidelberg township, including the following villages,		2,664
e Blue Marsh village,	134	
e Brownsville village,	65	
Maiden Creek township, including the following villages,		1,714
e Blandon village,	376	
e Mott-town village,	69	
e South Evansville village,	18	
Marion township, including the village of Stouchburg,		1,392
e Stouchburg village,	356	
Maxatawny township, including the following villages,		2,843
e Bowersville village,	192	
e Coffeetown village,	155	
e Lyons village,	458	
e Maxatawny village,	1,196	
e Rothrocksville village,	104	
Muhlenberg township,		1,913
North Heidelberg township,		950
Oley township, including village of Friendsburg,		2,175
e Friendsburg village,	379	
Ontelaunee township,		1,265
Penn township, including the following villages,		1,530
e Bernville village,	164	
e Mt. Pleasant village,	188	
Perry township, including village of Shomokersville,		1,527
e Shomokersville village,	429	
Pike township,		921
Reading city,		43,280
First ward,	3,044	
Second ward,	5,554	
Third ward,	4,455	
Fourth ward,	2,827	
Fifth ward,	3,399	
Sixth ward,	3,762	
Seventh ward,	4,130	
Eighth ward,	3,874	
Ninth ward,	4,206	
Tenth ward,	2,834	
Eleventh ward,	5,195	
Richmond township, including the following villages,		2,226
e Moselem village,	195	
e Virginsville village,	46	

e Walnuttown village,	141	
Robeson township, including village of Benderville,		2,322
e Benderville village,	66	
Rockland township, including the following villages,		1,527
e New Jerusalem village,	89	
e Stony Point village,	50	
Ruscombmanor township,		1,466
Spring township, including the following villages,		2,340
e Fritztown village,	83	
e Sinking Valley village,	517	
e West Reading village,	170	
Topton borough,		515
Tulpehocken township, including the following villages,		2,092
e Mt. Etna village,	304	
e Rehrersburg village,	366	
Union township,		1,540
Upper Berne township, including the following villages,		2,179
e Berne village,	58	
e Shartlesville village,	212	
e West Hamburg village,	148	
Upper Tulpehocken township, including village of Strausstown,		1,274
e Strausstown village,	310	
Washington township,		1,924
Wernersville borough,		198
Windsor township,		830
Womelsdorf borough,		1,097
Total,		122,599

Blair County.

Allegheny township, including Bennington election district,		2,140
e Bennington election district,	954	
Altoona city,		19,716
First ward,	2,735	
Second ward,	3,342	
Third ward,	2,493	
Fourth ward,	2,587	
Fifth ward,	2,709	
Sixth ward,	3,058	
Seventh ward,	823	
Eighth ward,	1,969	
Antis township, including the following villages,		2,282
e Bellewood village,	366	
e Davidsburg village,	94	
e Fostoria village,	78	
Blair township,		456
Catharine township,		596
East Hollidaysburg borough,		638
East Lynne borough,		279
Frankstown township, including village of Frankstown,		1,766
e Frankstown village,	370	
Freedom township,		1,228
Gaysport borough,		764
Greenfield township, including village of Claysburg,		1,285
e Claysburg village,	178	
Hollidaysburgh borough,		3,150
Huston township,		1,533

Juniata township,		729
Logan township,		4,590
Martinsburg borough,		567
Newry borough,		326
North Woodbury township, including the following villages,		1,695
e Fredericksburg village,	179	
e Millerstown village,	52	
e West Martinsburg village,	167	
Snyder township,		1,424
Taylor township, including the following villages,		2,011
e Ore Hill village,	140	
e Roaring Springs village,	489	
e Rodman Furnace village,	217	
e Sharpsburg village,	132	
Tyrone City borough,		2,678
Tyrone township,		1,004
Williamsburg borough,		566
Woodbury township,		1,328
Total,		52,751

Bradford County.

Alba borough,		189
Albany township,		1,464
Armenia township,		410
Asylum township,		1,241
Athens borough,		1,592
Athens township, including the following villages,		2,402
e Orcutt Creek village,	80	
e Sayer village,	729	
Barclay township, including the following places,		2,634
e Barclay village,	1,143	
e Carbon Run village,	600	
e Dublin village,	113	
e Fall Creek village,	113	
e Foot of Plane hamlet,	102	
e Long Valley village,	168	
e Sand Run hamlet,	359	
Burlington borough,		200
Burlington township,		1,094
Canton borough,		1,194
Canton township, including the following villages,		1,837
e East Canton village,	74	
e Grover village,	60	
Columbia township,		1,304
Franklin township,		702
Granville township, including village of Granville Centre,		1,302
e Granville Center village,	155	
Herrick township,		935
Le Raysville borough,		324
Le Roy township,		1,196
Litchfield township,		1,159
Monroeton borough,		383
Monroe township,		1,388
New Albany borough,		222
North Towanda township, including village of North Towanda,		746
e North Towanda village,	295	

Orwell township, including the following villages,		1,307
e Orwell Hill village,	157	
e Potterville village,	120	
Overton township,		503
Pike township, including town of Stevensville,		1,496
e Stevensville town,†	—	
Ridgebury township,		1,489
Rome township, including the village of Rome,		1,281
e Rome village,	236	
Sheshequin township,		1,460
Smithfield township, including village of Smithfield,		1,826
e Smithfield village,	263	
South Creek township,		1,113
South Waverly borough,		854
Springfield township,		1,516
Standing Stone township,		815
Sylvania borough,		227
Terry township,		1,286
Towanda borough,		3,814
First ward,	1,198	
Second ward,	1,574	
Third ward,	1,042	
Towanda township, including village of South Towanda,		1,142
e South Towanda village,	403	
Troy borough,		1,241
Troy township, including village of East Troy,		1,558
e East Troy village,	99	
Tuscarora township,		1,295
Ulster township, including village of Ulster,		1,168
e Ulster village,	155	
Warren township,		1,336
Wells township,		1,148
West Burlington township, including village of West Burlington,		915
e West Burlington village,	57	
Wilmot township, including village of Sugar Run,		1,680
e Sugar Run village,	111	
Windham township,		1,160
Wyalusing township,		1,581
Wysox township, including village of Myersburg,		1,406
e Myersburg village,	90	
Total,		58,535

Bucks County.

Bedminster township, including the following villages,		2,482
e Bedminster village,	37	
e Dublin village,	86	
Bensalem township, including the following villages,		2,217
e Andalusia village,	140	
e Bridgewater village,	50	
e Eddington village,	100	
Bridgeton township,		1,058
Bristol borough,		5,273
First ward,	1,536	
Second ward,	1,662	
Third ward,	2,075	

Bristol township, including village of Newport,		1,682
e Newport village,	241	
Buckingham township, including the following villages,		2,815
e Bushington village,	64	
e Clayton village,	16	
e Concord village,	34	
e Forest Grove village,	89	
e Glendale village,	16	
e Highlon village,	14	
e Lahaska village,	47	
e Pineville village,	42	
Doylestown borough,		2,070
Doylestown township, including the following villages,		1,845
e Bridge Point village,	55	
e Cross Keys village,	60	
e Haughville village,	102	
Durham township, including the following villages,		1,420
e Monroe village,	90	
e Riegelsville village,	308	
Falls township, including the following villages,		2,385
e Fallsington village,	320	
e Tullytown village,	262	
Haycock township, including village of Applebachville,		1,332
e Applebachville village,	96	
Hilltown township, including the following villages,		3,152
e Blooming Glen village,	125	
e Dublin village,	187	
Hulmeville borough,		376
Langhorne borough, (formerly called Attleboro',)		558
Lower Makefield township, including village of Yardleyville,		2,163
e Yardleyville village,	820	
Middletown township, including village of Oxford,		1,360
e Oxford village,	58	
Milford township, including the following villages,		2,975
e Milford Square village,	77	
e Skinnerstown village,	80	
e Steinsburg village,	105	
Morrisville borough,		968
New Brittain township, including the following villages,		1,844
e Chalfant village,	216	
e Gellenna village,	65	
e Lexington Line village,	157	
e New Brittain village,	119	
New Hope borough,		1,152
Newtown borough,		1,001
Newtown township,		970
Nockamixon township, including village of Kintnersville,		1,554
e Kintnersville village,	106	
Northampton township, including the following villages,		1,768
e Churchville village,	26	
e Richboro' village,	177	
e Rocksville village,	36	
Perkasie borough,		300
Plumstead township, including the following villages,		2,537
e Gardenville village,	69	
e Plumsteadville village,	159	
Quakertown borough,		1,769

Richland township, including village of Richlandtown,		1,994
e Richlandtown village,	272	
Rock Hill township,		3,207
Sellersville borough,		490
Solebury township,		2,648
Southampton township, including village of Southamptonville,		1,435
e Southamptonville village,	147	
Springfield township,		2,525
Tinicum township, including the following villages,		2,346
e Erwinna village,	89	
e Jugtown village,	133	
e Point Pleasant village,	78	
e Uhlerstown village,	99	
Upper Makefield township, including the following villages,		1,470
e Dolington village,	109	
e Taylorsville village,	100	
Warminster township, including the following villages,		1,061
e Breadyville village,	42	
e Hartsville village,	101	
e Ivyland village,	50	
e Johnsville village,	110	
Warrington village,		959
Warwick township,		722
Wrightstown township, including the following villages,		773
e Rush Valley village,	30	
e Wrightstown village,	29	
Total,		68,656

Butler County.

Adams township,		1,156
Allegheny township,		2,287
Brady township, including village of West Liberty,		772
e West Liberty village,	63	
Buffalo township, including village of Sarversville,		1,263
e Sarversville village,	37	
Butler borough,		3,163
Butler township,		1,007
Centre township, including village of Unionville,		980
e Unionville village,	44	
Centreville borough,		418
Cherry township,		1,161
Clay township,		1,036
Clearfield township,		999
Clinton township,		1,048
Concord township, including the following villages,		1,512
e Middletown village,	94	
e Modoc village,	127	
e Troutman village,	320	
Conoquenessing township, including the following villages,		1,190
e Petersville village,	90	
e Whitestown village,	90	
Coylesville borough,		57
Cranberry township,		983
Donegal township,		2,156
Fairview borough,		333
Fairview township,		3,930

Forward townshship, including village of Evansburg,		1,133
e Evansburg village,	68	
Franklin township,		1,047
Greece City borough,		142
Harmony borough,		492
Harrisville borough,		386
Jackson township,		1,267
Jefferson township, including town of Great Belt City,		1,214
e Great Belt City town,†	—	
Karns City borough,		701
Lancaster township,		1,070
Marion township,		1,086
Mercer township, including village of Forrestville,		985
e Forrestville village,	233	
Middlesex township,		1,101
Millerstown borough,		1,108
Muddy Creek township,		790
Oakland township		1,039
Parker township, including the following towns,		2,516
e Eldorado town,	53	
e Martinsburg town,	287	
Penn township,		1,131
Petrolia borough,		1,186
Portersville borough,		216
Prospect borough,		362
Saxonburg borough,		319
Slippery Rock township,		1,006
Summit township,		1,266
Sunbury borough,		243
Venango township,		1,322
Washington township, including the following villages,		1,287
e Hilliard village,	116	
e North Washington village,	147	
Winfield township,		1,092
Worth township, including the village of Mechanicsburg,		1,076
e Mechanicsburg village,	52	
Zelienople borough,		497
Total,		52,536

Cambria County.

Adams township,		1,004
Allegheny township,		1,431
Barr township, including the village of Nicktown,		899
e Nicktown village,	57	
Blacklick township, including the village of Belsan,		587
e Belsan village,	50	
Cambria borough,		2,223
Cambria township,		1,047
Carroll township,		1,295
Carrollton borough,		502
Chest Spring borough,		305
Chest township, including the village of St. Lawrence,		527
e St. Lawrence village,	53	
Clearfield township,		1,324
Conemaugh borough,		3,504
First ward,	1,561	
Second ward,	1,943	

Conemaugh township,		418
Coopersdale borough,		409
Croyle township,		894
Dean township,		216
East Conemaugh borough,		756
Ebensburg borough,		1,123
Elder township, including the village of St. Boniface,		579
c St. Boniface village,	74	
Franklin borough,		734
Gallitzin borough,		799
Gallitzin township,		437
Jackson township, including the village of Fairview,		1,004
c Fairview village,	71	
Johnstown borough,		8,380
Loretto borough,		280
Lower Yoder township, including village of Morrillville,		957
c Morrillville village,	559	
Millville borough,		2,409
Munster township,		546
Portage township, including the village of Portage,		765
c Portage village,	274	
Prospect borough,		700
Reade township, including the village of Lloydville,		1,532
c Lloydville village,	370	
Richland township,		996
Stony Creek township,		900
Summer Hill borough,		345
Summer Hill township,		620
Summitville borough,		139
Susquehanna township, including the village of Germantown,		949
c Germantown village,	28	
Taylor township, including the following places,		1,374
c Beuchoff's Mills hamlet,	58	
c Mineral Point village,	134	
c Stringtown village,	89	
c Upper Prospect village,	144	
Tunnelhill borough,		224
Upper Yoder township, including village of Grubtown,		916
c Grubtown village,	288	
Washington township,		1,443
White township,		383
Wilmore borough,		310
Woodvale borough,		639
Total,		46,824

Cameron County.

Driftwood borough,		504
Emporium borough,		1,156
Gibson township,		700
Grove township,		494
Lumber township, including the following villages,		902
c Cameron village,	263	
c Sterling Run village,	411	
Portage township,		186
Shippen township,		1,217
Total,		5,159

Carbon County.

Banks township, including the following villages,		4,019
e Beaver Meadow village,	502	
e Beaver Meadow Mines village,	806	
e Hazel Creek Bridge village,	33	
e Jeansville village,	441	
e Tresckow village,	676	
e Yorktown village,	1,039	
East Mauch Chunk borough,		1,853
East Penn township,		931
Franklin township,		1,741
Lansford borough,		2,206
Lausanne township, including the following villages,		1,421
e Buck Mountain village,	644	
e Laurytown village,	514	
e Penn Haven village,	142	
e Rockport village,	121	
Lehigh township,		36
Lehighton borough,		2,532
Lower Towamensing township,		1,732
Mahoning township,		1,308
Mauch Chunk borough,		3,752
First ward,	2,040	
Second ward,	1,712	
Mauch Chunk township, including the following villages,		4,082
e Bloomingdale village,	168	
e Coal Port village,	205	
e Hacklebonie village,	172	
e Hauto village,	109	
e Jamestown village,	674	
e Nesquehoning village,	957	
North Kidder township, including the following villages,		661
e Bridgeport village,	158	
e East Haven village,	147	
e Lehigh Tannery village,	217	
Packer township,		496
Parryville borough,		657
Penn Forest township,		653
South Kidder township,		546
Towamensing township,		931
Weatherly borough,		1,977
Weisport borough,		388
Total,		31,922

Centre County.

Bellefonte borough,		3,026
North ward,	1,344	
South ward,	1,096	
West ward,	586	
Benner township,		1,282
Boggs township, including village of Central City,		2,098
e Central City village,	286	
Burnside township,		465
College township,		1,417
Curtin township,		624

Ferguson township, including village of Pine Grove Mills,		1,816
e Pine Grove Mills village,	251	
Gregg township, including village of Spring Mills,		1,795
Spring Mills village,	278	
Haines township, including the following villages,		1,422
Aaronsburg village,	371	
Woodward village,	104	
Half Moon township,		563
Harris township, including village of Boalsburg,		942
e Boalsburg village,	329	
Howard borough,		498
Howard township, including village of Mount Eagle,		947
e Mount Eagle village,	150	
Huston township, including village of Julian,		892
e Julian village,	192	
Liberty township, including the following villages,		1,284
e Eagleville village,	563	
e Fowler's Mills village,	63	
Marion township, including village of Jacksonville,		674
e Jacksonville village,	177	
Miles township, including the following places,		1,512
e Franklinville village,	69	
e Madisonburg town,	170	
e Petersburg town,	221	
Milesburg borough,		643
Millheim borough,		577
Patton township,		761
Penn township,		814
Phillipsburg borough,		1,779
Potter township, including the following villages,		2,375
e Center Hall village,	350	
e Center Hill village,	108	
e Potter's Mills village,	180	
Rush township,		1,591
Snow Shoe township, including village of Snow Shoe,		1,410
e Snow Shoe village,	400	
Spring township, including the following villages,		2,235
e Coleville village,	260	
e Harrisonville village,	70	
e Pleasant Gap village,	175	
Taylor township, including village of Stormstown,		718
e Stormstown village,	101	
Union township,		1,086
Unionville borough,		399
Walker township, including the following villages,		1,467
e Hublersburg village,	170	
e Snydertown village,	37	
e Zion village,	65	
Worth township, including village of Port Matilda,		809
e Port Matilda village,	310	
Total,		37,921

Chester County.

Atglen borough,	347
Birmingham township,	503
Caln township,	863

Charlestown township, including village of Charlestown,		902
e Charlestown village,	50	
Coatesville borough,		2,766
Downington borough,		1,480
East Bradford township,		1,054
East Brandywine township,		1,011
East Caln township, including village of Gallagherville,		539
e Gallagherville village,	107	
East Coventry township, including village of Lawrenceville,		1,259
e Lawrenceville village,	152	
East Fallowfield township, including the following villages,		1,461
e Ercildoun village,	126	
e Hustonville village,	130	
e Modina village,	126	
East Goshen township,		724
East Marlborough township,		1,337
East Nantmeal township,		936
East Nottingham township,		1,351
East Pikeland township, including village of Kimberton,		804
e Kimberton village,	82	
Easttown township, including village of Berwyn,		845
e Berwyn village,	158	
East Vincent township,		1,252
East Whiteland township,		1,273
Elk township,		830
Franklin township,		966
Highland township,		896
Honeybrook borough,		281
Honeybrook township, including village of Rockville,		1,568
e Rockville village,	215	
Hopewell borough,		216
Kennett Square borough,		1,021
Kennett township, including village of Hamorton,		1,247
e Hamorton village,	159	
London Britain township,		621
Londonderry township,		727
London Grove township, including the following villages,		2,148
e Avondale village,	323	
e Chatham village,	123	
e West Grove village,	278	
Lower Oxford township,		1,429
New Garden township, including the following villages,		1,942
e Laudensburg village,	353	
e Toughkenamon village,	241	
Newlin township,		779
New London township,		891
North Coventry township, including the following villages,		1,441
e Cedarville village,	184	
e Madison village,	164	
e Pottstown village,	214	
Oxford borough,		1,502
Parkesburg borough,		817
Penn township, including village of Jennerville,		739
e Jennerville village,	87	
Pennsbury township,		795
Phœnixville borough,		6,681
North ward,	2,515	

South ward,	4,166	
Pocopson township,		564
Sadsbury township, including the following villages,		749
c Pomeroy village,	77	
c Sadsburyville village,	212	
Schuylkill township, including the following villages,		1,416
c Harveyville village,	78	
c Valley Forge village,	184	
South Coventry township, including the following villages,		569
c Coventryville village,	110	
c Pughtown village,	80	
Spring City borough,		1,112
Thornbury township,		262
Tredyffrin township, including the village of Howellville,		1,975
c Howellville village,	114	
Upper Oxford township, including village of Russellville,		1,096
c Russellville village,	98	
Upper Uwchlan township,		848
Uwchlan township, including the village of Leonville,		698
c Leonville village,	114	
Valley township,		1,187
Wallace township,		711
Warwick township,		1,267
West Bradford township, including the following villages,		1,620
c Marshallton village,	278	
c Romansville village,	64	
West Brandywine township,		874
West Caln township,		1,275
West Chester borough,		7,046
North ward,	1,343	
South ward,	1,849	
East ward,	1,732	
West ward,	2,122	
West Fallowfield township, including the following villages,		1,048
c Cochransville village,	122	
c Steelville village,	79	
West Goshen township,	1,133	
West Marlborough township,	1,146	
West Nantmeal township, including village of Springfield,		1,027
c Springfield village,	214	
West Nottingham township, including the following villages,		864
c Fremont village,	59	
c Nottingham village,	62	
West Pikeland township,		1,005
West Sadsbury township,		693
Westtown township,		848
West Vincent township,		1,238
West Whiteland township, including the following village,		1,345
e Walker's or Whiteland village,	112	
Willistown township,		1,620
Total,		83,480

Clarion County.

Ashland township,		1,053
Beaver township, including the following villages,		3,585
e Beaver City village,	278	
e Blair Corners village,	26	
e Forest Home village,	165	
e Jefferson City village,	100	
e Mongtown village,	147	
e Monroeville village,	249	
e West Elk City village,	92	
Brady township, including village of Phillipsburg,		258
e Phillipsburg village,	174	
Callensburg borough,		277
Clarion borough,		1,169
Clarion township,		1,446
Curllsville borough,		145
East Brady borough,		1,242
Edenburg borough,		1,020
Elk township, including the following villages,		2,169
e Elk City village,	382	
e Shippenville village,	388	
Farmington township, including the following villages,		2,185
e Scotch Hill village,	84	
e Tylersburg village,	146	
Highland township,		698
Knox township,		767
Licking township, including the following villages,		1,123
e Best's Corners village,	36	
e Easton village,	83	
Limestone township,		1,354
Madison township, including the following villages,		2,100
e Catfish village,	151	
e Lawsonham village,	138	
e Lower Hillville village,	32	
e New Athens village,	35	
e Red Bank Furnace village,	196	
e Sarah Furnace village,	32	
Mill Creek township,		807
Monroe township, including the following villages,		1,161
e Reidsburg village,	87	
e Williamsburg village,	47	
New Bethlehem borough,		773
Paint township,		573
Perry township, including the following villages,		2,458
e East Parker village,	213	
e Hagantown village,	55	
e West Freedom village,	215	
e West Monterey village,	207	
Piney township,		822
Porter township,		1,591
Red Bank township, including the following villages,		2,308
e Fairmount City village,	544	
e New Mayville village,	107	
e Shannondale village,	92	
e West Millville village,	290	
Richland township, including village of Foxburg,		2,740
e Foxburg village,	514	

Rimersburg borough,		334
St. Petersburg borough,		1,044
Salem township, including the following villages,		1,496
e Pilgrim village,	96	
e Salem village,	198	
Sligo borough,		543
Strattonville borough,		317
Toby township,		1,272
Washington township, including the following villages,		1,496
e Fryburg village,	270	
e Lickingville village,	145	
Total,		40,326

Clearfield County.

Beccaria township, including the following villages,		1,461
e Glen Hope village,	164	
e Utahville village,	100	
Beel township,		998
Bloom township,		443
Boggs township, including village of Blue Ball,		905
e Blue Ball village,	176	
Bradford township, including the following villages,		1,702
e Bigler village,	99	
e Woodland village,	418	
Brady township,		1,888
Burnside borough,		279
Burnside township,		1,513
Chest township,		1,098
Clearfield borough,		1,808
Covington township,		729
Curwensville borough,		706
Decatur township,		2,443
Ferguson township,		704
Girard township,		575
Goshen township,		501
Graham township,		645
Greenwood township,		455
Gulich township, including the following villages,		1,088
e Alemansville village,	66	
e Centennialville village,	31	
e Janesville village,	234	
e Ramsey village,	166	
e Sterling village, (part of,) †(see Woodward township.)		
Houtzdale borough,		2,060
Huston township, including the following villages,		1,354
e Penfield village,	299	
e Tylers village,	133	
e Winterburne village,	247	
Jordan township, including village of Ansonville,		685
e Ansonville village,	99	
Karthans township,		685
Knox township, including village of New Milport,		788
e New Milport village,	117	
Lawrence township,		2,233
Lumber City borough,		298

Morris township, including the following villages,		1,969
e Decatur Mines village,†	—	
e Kylertown village,	141	
e Morrisdale Mines village,	409	
e Nettle village,†	—	
Newburg borough,		184
New Washington borough,		280
Osceola Mills borough,		1,253
Penn township,		611
Pike township,		1,441
Sandy township, including village of Du Bois,		3,840
e Du Bois village,	2,718	
Union township, including village of Rockton,		551
e Rockton village,	100	
Wallaceton borough,		196
Woodward township, including the following villages,		5,105
e Madera village,	148	
e North Houtzdale village,	2,037	
e Shillingford village,	58	
e Sterling village, (part of,) (See Gulich township,)	1,272	
e West Houtzdale village,	388	
Total,		43,407

Clinton County.

Allison township, including town of Flemington,		930
e Flemington town,†	—	
Bald Eagle township,		939
Beech Creek borough,		400
Beech Creek township,		800
Castanea township,		343
Chapman township,		938
Colebrook township, including village of Farrandsville,		431
e Farrandsville village,	273	
Crawford township, including village of Ranch Town,		463
e Ranch Town village,	152	
Dunnstable township, including town of New Liberty,		576
e New Liberty town,	75	
East Keating township, including town of Wistar,		245
e Wistar town,	37	
Gallaher township,		385
Greene township,		1,253
Grugan township,		291
Lamar township, including village of Hamburg, also called Mackeyville,		1,524
e Hamburg village, also called Mackeyville,	134	
Leidy township,		583
Lock Haven city,		5,845
First ward,	1,696	
Second ward,	1,417	
Third ward,	1,302	
Fourth ward,	1,430	
Logan township, including the following villages,		959
e Booneville village,	131	
e Tylerville village,	108	

NOTE.—The part of Sterling village which is in Woodward township has been separated, but thus far the enumerator of Gulich township has failed to make the separation.

Logansville borough,		423
Mill Hall borough,		398
Noyes township, including village of Westport,		596
e Westport village,	248	
Pine Creek township, including village of Charlton,		1,078
e Charlton village,	134	
Porter township, including village of Clintondale,		1,056
e Clintondale village,	150	
Renova borough,		3,708
First ward,	1,959	
Second ward,	1,749	
Wayne township, including the following villages,		742
e Pine Station village,	93	
e Wayne Station village,	78	
West Keating township,		273
Woodward township, including the following villages,		1,099
e Dunnstown village,	214	
e Lockport village,	242	
e Queen's Run village,	109	
Total,		26,278

Columbia County.

Beaver township,		1,221
Benton township, including village of Benton,		1,062
e Benton village,	191	
Berwick borough,		2,095
Bloomsburg borough and Bloom township, (co-extensive,)		3,702
Briar Creek township,		1,172
Catawissa township, including town of Catawissa,		2,002
e Catawissa town,	1,427	
Centralia borough,		1,886
Center township, including village of Centerville,		1,255
e Centerville village,	291	
Conyngham township, including the following villages,		1,805
e Central School-House village,	336	
e Dark Corners village,	472	
e Germantown village,	139	
e Locust Dale village,	608	
e Montana village,	250	
Fishing Creek township,		1,446
Franklin township,		543
Greenwood township, including the following villages,		1,709
e Millville village,	375	
e Rohrsburg village,	146	
Hemlock township, including the village of Buckhorn,		1,080
e Buckhorn village,	166	
Jackson township,		675
Locust township, including the following villages,		2,014
e New Media village,	65	
e Slabtown village,	148	
Madison township, including village of Jerseytown,		1,074
e Jerseytown village,	149	
Maine township,		626
Mifflin township, including village of Mifflinville,		1,038
e Mifflinville village,	309	
Montour township, including village of Rupert,		660
e Rupert village,	127	

Mount Pleasant township,		759
Orange township, including village of Orangeville,		901
e Orangeville village,	403	
Pine township,		911
Roaring Creek township,		553
Scott township, including the following villages,		1,347
e Espy village,	462	
e Light Street village,	364	
Sugar Loaf township,		872
Total,		32,408

Crawford County.

Athens township,		1,419
Beaver township,		1,136
Bloomfield township, including village of Lincolnville,		1,491
e Lincolnville village,	107	
Blooming Valley borough,		232
Cambridge borough,		674
Cambridge township,		745
Centreville borough,		307
Cochranton borough,		645
Conneaut township, including village of Pennline,		1,601
e Pennline village,	75	
Conneautville borough,		941
Cussewago township,		1,397
Evansburg borough,		197
Fairfield township,		929
Fairfield (East) township,		748
Fallowfield (East) township,		1,306
Fallowfield (West) township, including village of Adamsville,		482
e Adamsville village,	137	
Geneva borough,		346
Greenwood township,		1,614
Hartstown borough,		167
Hayfield township,		1,954
Linesville borough,		550
Mead township, including village of Peiflytown,		2,857
e Peiflytown village,	287	
Meadville city,		8,860
First ward,	2,011	
Second ward,	2,554	
Third ward,	2,190	
Fourth ward,	2,105	
North Shenango township,		942
Oil Creek borough,		405
Oil Creek township, including village of Kerrtown,		1,578
e Kerrtown village,	120	
Pine township,		385
Randolph township, including village of Geney's Mill,		1,869
e Geney's Mill village,	150	
Riceville borough,		314
Richmond township,		1,490
Rockdale township,		1,603
Rome township,		1,324
Sadsbury township,		895
Sagetown borough,		678

South Shenango township,		991
Spartansburg borough,		486
Sparta township,		1,181
Spring borough,		379
Spring township,		1,524
Steuben township,		782
Summerhill township,		1,202
Summit township, including village of Harmonsburg,		1,058
e Harmonsburg village,†	——	
Titusville city,		9,046
First ward,	2,317	
Second ward,	3,291	
Third ward,	1,547	
Fourth ward,	1,891	
Townville borough,		610
Troy township,		1,327
Turnersville borough,		84
Union township, including village of Union,		603
e Union village,	250	
Vallonia borough,		528
Venango borough,		347
Venango township,		602
Vernon township,		1,919
Wayne township,		1,597
West Shenango township,		277
Woodcock borough,		184
Woodcock township,		1,499
Total,		68,607

Cumberland County.

Carlisle borough,		6,209
First ward,	1,714	
Second ward,	1,202	
Third ward,	1,613	
Fourth ward,	1,680	
Cook township,		417
Dickinson township,		1,741
East Pennsboro' township, including the following villages,		3,084
e Camp Hill village,	467	
e Wormleysburg village,	297	
e West Fairview village,	1,090	
Frankford township, including village of Bloserville,		1,514
e Bloserville village,	103	
Hampden township,		1,000
Hopewell township,		1,069
Lower Allen township, including the following towns,		972
e Eberly's Mills town,	83	
e Lisbon town,	193	
Mechanicsburg borough,		3,018
First ward,	1,153	
Second ward,	763	
Third ward,	543	
Fourth ward,	559	
Middlesex township, including village of Middlesex,		1,466
e Middlesex village,	126	
Mifflin township,		1,507

Monroe township, including village of Churchtown,		1,905
e Churchtown village,	346	
Mt. Holly Springs borough,		1,257
Newburg borough,		433
New Cumberland borough,		569
Newton township, including the following villages,		1,843
e Jacksonville village,	203	
e New Lancaster village,	48	
e Oakville village,	106	
e Stoughtstown village,	85	
Newville borough,		1,547
North Middletown township,		1,115
Penn township, including the following villages,		1,521
e Brushtown village,	193	
e Centreville village,	147	
e Huntsville village,	84	
Shippensburg borough,		2,213
Shippensburg township,		494
Shiremanstown borough,		404
Silver Spring township, including the following villages,		2,263
e Hogestown village,	163	
e New Kingston village,	299	
Southampton township, including the following villages,		1,992
e Cleversburg village,	174	
e Lee's Cross Roads village,	135	
e Middle Spring village,	121	
South Middleton township, including the following villages,		2,864
e Boiling Springs village,	450	
e Springville village,	86	
Upper Allen township, including village of Shepherdstown,		1,400
e Shepherdstown village,	135	
West Pennsboro' township, including the following villages,		2,161
e Greason village,	94	
e Palmstown village,	37	
e Plainfield village,	202	
e Springfield village,	144	
e West Hill village,	41	
Total,		45,978

Dauphin County.

Berrysburg borough,		476
Conewago township, including village of Bachmansville,		895
e Bachmansville village,	63	
Dauphin borough,		713
Derry township,		2,013
East Hanover township, including the village of Grantville,		1,637
e Grantville village,	152	
Gratz borough,		409
Halifax borough,		586
Halifax township, including village of Matamoras,		1,406
e Matamoras village,	196	
Harrisburg city,		30,762
First ward,	3,282	
Second ward,	2,476	
Third ward,	2,637	
Fourth ward,	3,448	

Fifth ward,	3,308	
Sixth ward,	5,655	
Seventh ward,	3,811	
Eighth ward,	3,198	
Ninth ward,	2,947	
Highspire borough,		752
Hummelstown borough,		1,043
Jackson township,		1,191
Jefferson township,		369
Londonderry township, including village of Portroyal,		2,024
e Portroyal village,	555	
Lower Swatara township,		749
Lower Paxton township, including village of Linglestown,		1,615
e Linglestown village,	316	
Lykens borough,		2,154
Lykens township,		1,256
Middle Paxton township,		1,443
Middleton borough,		3,351
Middle ward,	947	
North ward,	1,183	
South ward,	1,221	
Mifflin township,		647
Millersburg borough,		1,440
Reed township,		324
Rush township,		124
South Hanover township, including the following villages,		1,205
e Manadaville village,	83	
e Union Deposit village,	435	
Steelton borough,		2,447
Susquehanna township, including the following villages,		2,411
e East Harrisburg village,	198	
e Progress village,	144	
e Rockville village,	251	
Swatara township, including the following villages,		2,841
e Churchhill village,	178	
e Churchville village,	238	
e Ewington village,	819	
e Highland village,	289	
Uniontown borough,		367
Upper Paxton township, including the village of Lenkenville,		1,543
e Lenkenville village,	157	
Washington township,		1,420
Wayne township,		577
West Hanover township,		1,064
Williams township,		993
Williamstown borough,		1,771
Wiconisco township,		2,130
Total,		76,148

Delaware County.

Aston township, including the following villages,		2,401
e Bridewater village,	91	
e Croyerville village,	228	
e Llewellyn village,	430	
e Rockdale village,	590	

e Village Green village,	237	
e West Branch village,	121	
Bethel township, including the following villages,		589
e Booth's Corner village,	69	
e Chelsea village,	80	
Birmingham township, including village of Chadd's Ford,		739
e Chadd's Ford village,	108	
Chester city,		14,996
Middle ward,	2,660	
North ward,	5,895	
South ward,	6,441	
Chester township,		582
Concord township, including the following villages,		1,311
e Concord village,	116	
e Elam village,	23	
Darby borough,		1,779
Darby township,		1,245
Edgemont township,		648
Haverford township,		1,488
Lower Chichester township, including the following villages,		1,700
e Linwood village,	543	
e Marcus Hook village,	816	
Marple township,		899
Media borough,		1,919
Middletown township, including the following villages,		2,798
e Glen Riddle village,	416	
e Lima village,	114	
e Parkmount village,	80	
e Senni village,	335	
Nether Providence township,		1,727
Newtown township,		734
North Chester borough,		1,381
Radnor township,		1,924
Ridley township, including the following villages,		2,533
e Eddystone village,	582	
e Leipenville village,	472	
e Norwood village,	194	
e Prospect Park village,	197	
e Ridley Park village,	439	
South Chester borough,		3,664
Springfield township, including the following villages,		1,772
e Hayville village,	177	
e Morton village,	327	
Thornbury township,		943
Tinicum township,		224
Upland borough,		2,028
Upper Chichester township,		523
Upper Darby township,		4,700
Upper Providence township,		855
Total,		56,102

Elk County.

Benezette township, including village of Benezette,		835
e Benezette village,	297	
Benzinger township,		1,976
Fox township, including village of Centreville,		2,256
e Centreville village,	444	

Highland township,		261
Horton township,		688
Jay township, including village of Caledonia,		600
e Caledonia village,	70	
Jones township,		1,427
Millstone township,		209
Ridgway township, including town of Ridgway,		2,580
e Ridgway town,	—	
St. Mary's borough,		1,501
Spring Creek township,	467	
Total,		12,800

Erie County.

Albion borough,		433
Amity township, including village of Milltown,		1,033
e Milltown village,	92	
Concord township,		1,171
Conneaut township,		1,546
Corry city,		5,277
First ward,	2,758	
Second ward,	2,519	
Edinboro' borough,		876
Elgin borough,		154
Elk Creek township, including village of Wellsburg,		1,564
e Wellsburg village,	256	
Erie city,		27,730
First ward,	4,622	
Second ward,	6,583	
Third ward,	5,378	
Fourth ward,	5,799	
Fifth ward,	2,348	
Sixth ward,	3,000	
Fairview borough,		425
Fairview township, including village of Swanville,		1,482
e Swanville village,	98	
Franklin township,		1,020
Girard borough,		703
Girard township, including the following villages,		2,338
e Girard Depot village,	448	
e West Girard village,	135	
Greene township,		1,531
Greenfield township,		1,020
Harbor Creek township,		1,781
Lebœuf township,		1,420
Lockport borough,		345
McKean borough,		1,394
Middleboro' borough,		210
Mill Creek township, including Mount Hickory Iron Works hamlet,		3,279
e Mount Hickory Iron Works hamlet,	127	
Mill Village borough,		358
North-East borough,		1,396
North-East township,		2,152
Springfield township, including village of East Springfield,		1,792
e East Springfield village,	102	
Summit township,		1,047
Union township,		1,377

Union City borough,		2,171
Venango township, including village of Lowville,		1,445
e Lowville village,	99	
Washington township,		1,880
Waterford borough,		784
Waterford township,		1,822
Wattsburg borough,		389
Wayne township,		1,306
Total,		74,681

Fayette County.

Bellevernon borough,		1,164
Bridgeport borough,		1,134
Brownsville borough,		1,489
Brownsville township,		246
Bullskin township, including the following villages,		2,732
e Mt. Vernon village,	143	
e Newburg village,	145	
e Pennsville village,	266	
e South Bridgeport village,	111	
Connellsville borough,		3,615
East ward,	1,926	
West ward,	1,689	
Connellsville township,		1,366
Dawson borough,		453
Dunbar township, including the following villages,		6,327
e Brookvale village,	158	
e East Liberty village,	191	
e East New Haven village,	147	
Fayette City borough,		867
Franklin township,		1,373
Georges township,		3,332
German township, including village of McClellandtown,		1,834
e McClellandtown village,	90	
Henry Clay township, including village of Markleysburg,		1,232
e Markleysburg village,	77	
Jefferson township,		1,613
Lower Tyrone township, including village of Jimtown,		1,976
e Jimtown village,	653	
Luzerne township, including village of Merrittstown,		1,744
e Merrittstown village,	62	
Masontown borough,		376
Menallen township, including the following villages,		1,461
e New Salem village,	158	
e Upper Middletown village,	131	
New Haven borough,		442
Nicholson township, including village of New Geneva,		1,514
e New Geneva village,	286	
North Union township,		3,170
Perry township, including village of Perryopolis,		1,476
e Perryopolis village,	321	
Redstone township,		1,066
Saltlick township, including village of Valley Mills,		1,372
e Valley Mills village,	34	
South Union township, including village of Monroe,		1,177
e Monroe village,	153	

Springfield township, including the following villages,		1,713
e Mill Run village,	109	
e Springfield village,	74	
Springhill township, including village of Port Marion,		1,558
e Port Marion village,	28	
Stewart township, including village of Falls City,		1,498
e Falls City village,	253	
Uniontown borough,		3,265
East ward,	1,582	
West ward,	1,683	
Upper Tyrone township,		3,306
Washington township,		1,257
Wharton township,		1,704
Total,		58,852

Forest County.

Barnett township, including village of Cooksburg,		615
e Cooksburg village,	88	
Green township,		543
Harmony township, including the following villages,		344
e Fagundus village,	181	
e Trunkeyville village,	46	
Hickory township, including the following villages,		831
e Beaver Valley village,	87	
e East Hickory village,	187	
e Neilltown village,	157	
e Stewart's Run village,	86	
e West Hickory village,	40	
Howe township, including village of Brookston,		382
e Brookston village,	276	
Jenks township,		219
Kingsley township,		460
Tionesta borough,		469
Tionesta township,		522
Total,		4,385

Franklin County.

Antrim township, including village of State Line,		4,284
e State Line village,	166	
Chambersburg borough,		6,877
Fannett township, including the following villages,		2,374
e Concord village,	166	
e Doylesburg village,	48	
e Dry Run village,	165	
e Spring Run village,	43	
Green township, including the following villages,		3,831
e Fayetteville village,	609	
e Green village,	185	
e Scotland village,	223	
Greencastle borough,		1,735
Guilford township,		3,068
Hamilton township,		1,766
Letterkenny township, including the following villages,		2,476
e Pleasant Hall village,	407	
e Upper Strasburg village,	306	

Lurgan township, including the following villages,		1,324
e Monersville village,	46	
e Roxbury village,	289	
Mercersburg borough,		931
Metal township, including the village of Fannettsburgh,		1,702
e Fannettsburgh village,	295	
Montgomery township, including the following villages,		3,447
e Clay Lick village,	64	
e Mercersburg village,	39	
e Welsh Run village,	62	
Peters township, including the following villages,		3,165
e Loudon village,	1,301	
e Peters village,†	——	
Quincy township, including the following villages,		3,309
e Franklin village,	122	
e Mont Alto village,†	——	
e Quincy village,	331	
St. Thomas township, including the following villages,		2,358
e St. Thomas village,	390	
e Williamson village,	80	
Southampton township, including the following villages,		2,040
e Fairview village,	84	
e Mainsville village,	88	
e Orrstown village,	302	
Warren township,		627
Washington township, including village of Rowzersville,		2,653
e Rowzersville village,	216	
Waynesboro' borough,		1,888
Total,		49,855

Fulton County.

Ayr township,		1,309
Belfast township,		928
Bethel township, including the following villages,		938
e Franklin Mills village,	36	
e Warfordsburg village,	56	
Brush Creek township, including the following villages,		820
e Akerville village,	19	
e Emmaville village,	36	
Dublin township, including the following villages,		931
e Burnt Cabins village,	118	
e Fort Littleton village,	109	
Licking Creek, including village of Harrisonville,		1,077
e Harrisonville village,	33	
McConnellsburg borough,		584
Taylor township, including the following villages,		988
e Dublin Mills village,	57	
e Hustontown village,	56	
e Sis post office village, (formerly called Waterfall Mills,)	49	
Thompson township,		732
Todd township, including village of Knobsville,		626
e Knobsville village,	67	
Union township,		602

Wells township, including the following villages,		614
e New Granada village,	74	
e Wells' Tannery village,	83	
Total,		10,149

Greene County.

Aleppo township,		1,448
Carmichaels borough,		489
Centre township,		1,844
Cumberland township,		1,868
Dunkard township, including village of Taylortown,		1,494
e Taylortown village,	143	
Franklin township, including the following villages,		1,986
e Bridgeport village,	27	
e Dotysville village,	166	
e Perrysville village,	113	
Gilmore township, including village of Jolleytown,		875
e Jolleytown village,	78	
Greene township,		707
Greensboro' borough,		432
Jackson township,		1,244
Jefferson borough,		347
Jefferson township, including village of Rice's Land,		957
e Rice's Land village,	116	
Marion township,		363
Monongahela township, including the following villages,		930
e Mapleton village,	122	
e Old Glass Works village,	128	
Morgan township, including the following villages,		1,035
e Clarksville village,	205	
e Lippincott village,	49	
Morris township, including village of Nineveh,		1,390
e Nineveh village,	58	
Perry township, including the village of Mount Morris,		1,339
e Mount Morris village,	282	
Richhill township, including village of Jacksonville,		2,795
e Jacksonville village,	149	
Springhill township, including village of New Freeport,		1,721
e New Freeport village,	99	
Washington township,		995
Wayne township,		1,826
Waynesburgh borough,		1,208
Whiteley township, including village of Newtown,		997
Newtown village,	43	
Total,		28,290

Huntingdon County.

Alexandria borough,		484
Barree township,		1,085
Birmingham borough,		233
Brady township, including village of Mill Creek,		909
e Mill Creek village,	288	
Broad Top City borough,		298

Carbon township, including the following villages,		1,393
e Barnets village.	110	
e Friendsbip village,	217	
e Ground Hog Valley village,	55	
e Little valley village,	69	
e Minersville village,	248	
e Robertsdale village,	694	
Cass township,		720
Cassville borough,		188
Clay township,		891
Coalmont borough,		171
Cromwell township, including the following villages,		1,709
e New Rockhill village,	200	
e Old Rockbill village,	190	
Dublin township,	925	
Dudley borough,		203
Franklin township,		1,129
Henderson township,		738
Hopewell township,		579
Huntingdon borough,		4,125
First ward,	895	
Second ward,	1,351	
Third ward,	1,018	
Fourth ward,	861	
Jackson township, including the following villages,		1,655
e Ennisville village,	70	
e Greenwood Furnace village,	225	
e McAlerys Fort village,	145	
Juniata township,		438
Lincoln township,		604
Logan townsbip,		611
Mapleton borough,		444
Marklesburg borough,		232
Morris township, including the following villages,		678
e Spruce Creek village,	218	
e Water Street village,	60	
Mount Union borough,		764
Oneida township,		353
Oribsonia borough,		766
Penn township, including the following villages,		998
e Grafton village,	133	
e Grantsville village,	73	
Petersburg borough,		381
Porter township, including village of Barree Iron Works,		1,039
e Barree Iron Works village,	260	
Saltillo borough,		227
Shade Gap borough,		170
Sbirley township,		1,703
Shirleysburg borough,		367
Springfield township, including the following villages,		816
e Maddensville village,	26	
e Meadow Gap village,	26	
Tell township,		1,058
Tbree Springs borough,		239
Todd township,		848
Union township,		780

Walker township, including the following villages,		1,002
e McConnellstown village,	308	
e Smithfield village,	151	
Warrior's Mark township, including the following villages,		1,240
e Spring Mount village,	94	
e Warrior's Mark village,	206	
West township, including the following villages,		763
e Fairfield village,	33	
e Mooreville village,	48	
Total,		33,956

Indiana County.

Armagh borough,		123
Armstrong township,		1,340
Bank township, including village of Smithport,		919
e Smithport village,	48	
Black Lick township,		925
Blairsville borough,		1,162
Brush Valley township,		1,365
Buffington township,		819
Burrell township, including the following villages,		1,770
e Bell's Mills village,	79	
e Black Lick village,	237	
e Brownstown village,	243	
e North Blairsville village,	100	
e O'Harra village,	135	
Canoe township, including the following villages,		1,217
e Locust Lane village,	51	
e Richmond village, (part of, see Grant township,)	44	
Center township,		1,265
Cherry Hill township, including village of Greenville,		2,262
e Greenville village,	198	
Cherry Tree borough,		330
Conemaugh township,		1,346
East Mahoning township, including village of Georgeville,		1,160
e Georgeville village,	104	
East Wheatfield township,		936
Grant township, including the following villages,		1,318
e Colfax village,	75	
e Richmond village, (part of, see Canoe township,)	49	
Greene township, including the following villages,		2,605
e Cookport village,	192	
e Dixonville village,	93	
e Pine Flat village,	115	
e Taylorsville village,	106	
e Uniontown village,	49	
Homer City borough,		381
Indiana borough,		1,907
Jacksonville borough,		114
Marion borough,		398
Mechanicsburg borough,		226
Montgomery township, including the village of Gettysburg,		1,265
e Gettysburg village,	211	
North Mahoning township, including the following villages,		1,317
e Covode village,	85	
e Davidsville village,	49	
e Marchant village,	115	

Pine township,		1,189
Rayne township,		1,958
Saltsburg borough,		858
Shelocta borough,		121
Smicksburg borough,		221
South Mahoning township, including the village of Plumville,		1,374
e Plumville village,	192	
Washington township, including the following villages,		1,668
e Advance village,	30	
e Creekside village,	50	
e Willet village,	50	
West Indiana borough,		1,077
West Mahoning township,		1,170
West Wheatfield township, including the following places,		1,359
e Centreville village,	169	
e New Washington hamlet,	38	
White township,		1,716
Young township, including the following villages,		1,376
e Elder's Ridge village,	37	
e West Lebanon village,	150	
Total,		40,558

NOTE.—Richmond village, in Canoe and Grant townships.

Jefferson County.

Barnett township,		296
Beaver township, including the following villages,		1,113
e Heathville village,	45	
e Pleasantville village,	18	
Bell township,		887
Big Run borough,		240
Brookville borough,		2,136
Clayville borough,		248
Clover township, including village of Summerville,		1,054
e Summerville village,	348	
Corsica borough,		391
Eldred township, including village of Seigle,		1,271
e Seigle village,	115	
Gaskill township,		540
Heath township,		207
Henderson township,		872
Knox township, including village of Knoxville,		1,011
e Knoxville village,	103	
McCalmont township,		549
Oliver township,		1,305
Perry township, including the following villages,		1,293
e Frostburg village,	49	
e Perrysville village,	117	
e Whitesville village,	47	
Pine Creek township, including the following villages,		1,189
e Emerickville village,	57	
e Port Barnet village,	70	
Polk township,		361
Porter township,		669
Punxsutawney borough,		674
Reynoldsville borough,		1,410
Ringgold township,		1,078

Rose township, including the following places,		1,601
e Belgium town,	126	
e Bellview village,	96	
Snyder township, including village of Brockwayville,		1,048
e Brockwayville village,	360	
Union township,		809
Warsaw township, including the following villages,		1,414
e Mayville village,	82	
e Richardsville village,	83	
Washington township,		1,282
Winslow township, including the following villages,		1,904
e Ohio village,	242	
e Pancoast village,	131	
e Prescottville village,	130	
e Sandy Valley village,	77	
Worthville borough,		174
Young township,		909
Total,		27,935

Juniata County.

Beale township,		1,130
Delaware township, including village of East Salem,		1,171
e East Salem village,	64	
Fayette township, including village of McAlisterville,		2,028
e McAllisterville village,	194	
Fermanagh township,		1,114
Greenwood township, including village of Dimmsville,		601
e Dimmsville village,	49	
Lack township, including village of Waterloo,		1,439
e Waterloo village,	55	
Mifflinstown borough,		842
Milford township,		1,341
Monroe township,		1,125
Patterson borough,		763
Port Royal borough,		621
Spruce Hill township,		1,007
Susquehanna township,		733
Thompsontown borough,		275
Turbett township,		747
Tuscarora township, including village of East Waterford,		1,591
e East Waterford village,	158	
Walker township, including village of Mexico,		1,699
e Mexico village,	213	
Total,		18,227

Lackawanna County.

Archbald borough,		3,048
Benton township, including village of Benton,		1,148
e Benton village,	69	
Blakely borough,		871
Carbondale city,		7,714
First ward,	3,189	
Second ward,	1,205	
Third ward,	1,712	
Fourth ward,	1,608	

Carbondale township,		1,163
Clifton township,		282
Covington township,		880
Dickson City borough,		838
Dunmore borough,		5,151
First ward,	710	
Second ward,	1,548	
Third ward,	1,495	
Fourth ward,	491	
Fifth ward,	293	
Sixth ward,	614	
Fell township,		441
Glenburn borough,		289
Gouldsboro' borough,		249
Greenfield township,		821
Jefferson township,		790
Jermyn borough,		1,541
Lackawanna township, including village of Moosic,		5,821
e Moosic village,	600	
Lehigh township,		196
Madison township, including village of Moscow,		1,091
e Moscow village,	320	
Newton township, including the following villages,		1,027
e Hillsdale Farms village,†	—	
e Shultzville village,	119	
North Abington township, including village of Dalton,		1,071
e Dalton village,	172	
Old Forge township,		1,408
Olyphant borough,		2,094
Ransom township, including the following villages,		646
e Gardner's Ferry village,	128	
e Milwaukee village,	91	
Roaring Brook township,		760
Scott township,		1,263
Scranton city,		45,850
First ward,	2,261	
Second ward,	3,152	
Third ward,	1,716	
Fourth ward,	3,596	
Fifth ward,	4,295	
Sixth ward,	1,746	
Seventh ward,	1,751	
Eighth ward,	3,262	
Ninth ward,	1,035	
Tenth ward,	990	
Eleventh ward,	3,187	
Twelfth ward,	2,222	
Thirteenth ward,	1,254	
Fourteenth ward,	2,627	
Fifteenth ward,	2,433	
Sixteenth ward,	2,530	
Seventeenth ward,	1,709	
Eighteenth ward,	1,158	
Nineteenth ward,	2,314	
Twentieth ward,	1,257	
Twenty-first ward,	1,355	
South Abington township, including the following villages,		923

e Clark's Green village,	207	
e Clark's Summit village,	92	
Spring Brook township,		658
Waverly borough,		329
Winton borough,		905
Total,		89,268

Lancaster County.

Adamstown borough,		701
Bart township, including village of Georgetown,		1,381
e Georgetown village,	204	
Brecknock township,		1,653
Cærnarvon township, including village of Churchtown,		1,704
e Churchtown village,	200	
Clay township,		1,500
Colerain township,		1,663
Columbia borough,		8,312
First ward,	2,759	
Second ward,	2,793	
Third ward,	2,760	
Conestoga township, including the following villages,		2,350
e Colemanville village,	100	
e Conestoga Center village,	505	
e Petersville or Slackwater village,	122	
e Rockhill village,	73	
e Safe Harbor village, (part of, see Manor township,)	478	
Conoy township, including the following villages,		2,055
e Bainbridge village,	669	
e Falmouth village,	273	
Drumore township, including the village of Centreville,		3,186
e Centreville village,	41	
Earl township, including the following villages,		2,536
e Henkletown village,	183	
e Martindale village,	133	
e Voganvile village,	177	
East Cocalico township, including the following villages,		2,226
e Reamstown village,	333	
e Union village,	195	
East Donegal township, including the following villages,		3,053
e Chickies village, (part of, see West Hempfield township),†	—	
e East Marietta village,	469	
e Springville village,	587	
e West Marietta village,	500	
East Earl township, including village of Fairwell,		3,028
e Fairwell village,	470	
East Hempfield township, including the following villages,		3,176
e Lanesville village,	149	
e Londesville village,	101	
e Petersburg village,	376	
e Roperstown village,	411	
e Salunga village,	113	
East Lampeter township,		2,493
Eden township, including the village of Quarryville,		1,250
e Quarryville village,	346	
Elizabethtown borough,		980

Elizabeth township, including village of Brickersville,		1,045
e Brickersville village,	127	
Ephrata township, including the following villages,		3,340
e Akron village,	284	
e Ephrata village,	392	
e Lincoln village,	353	
Fulton township, including the village of Texas,		1,888
e Texas village,	60	
Lancaster city,		25,769
First ward,	2,101	
Second ward,	2,812	
Third ward,	2,429	
Fourth ward,	2,892	
Fifth ward,	2,371	
Sixth ward,	3,391	
Seventh ward,	2,955	
Eighth ward,	3,971	
Ninth ward,	2,847	
Lancaster township,		1,261
Leacock township,		2,142
Litiz borough,		1,113
Little Britain township,		1,574
Manheim borough,		1,666
Manheim township,		2,934
Manor township, including the following places,		5,186
e Indiantown district,	1,578	
e Millersville district,	1,061	
e Millersville village,	1,121	
e New Manor village,	1,213	
e Safe Harbor village, (part of, see Conestoga township,)	213	
Marietta borough,		2,503
Martic township,		1,985
Maytown borough,		660
Mount Joy borough,		2,058
Mount Joy township, including village of Milton Grove,		1,967
e Milton Grove village,	72	
New Holland borough,		1,005
Paradise township,		2,519
Penn township,		2,269
Pequea township,		1,351
Providence township, including village of New Providence,		2,134
e New Providence village,	113	
Rappho township, including the following villages,		3,799
e Mastersonville village,	66	
e Newton village,	170	
Sadsbury township, including village of Christian,		1,782
e Christian village,	469	
Salisbury township, including the following villages,		3,873
e Cains village,	65	
e Cambridge village,	83	
e Gap village,	285	
e Hermitage village,	49	
e White Horse village,	88	
Strasburg borough,		1,005
Strasburg township, including village of Refton,		2,011
e Refton village,	34	

Upper Leacock township, including the following villages,		2,145
e Bareville village,	213	
e Mechanicsburg village,	284	
e Monterey village,	149	
e Stumptown village,	50	
Warwick township, including the following villages,		2,925
e Brunnerville village,	135	
e Lexington village,	153	
e Rothsville village,	343	
e Warwick village,	226	
Washington borough,		700
West Cocalico township,		2,312
West Donegal township, including village of Newville,		1,272
e Newville village,	169	
West Earl township, including village of Brownstown,		2,062
e Brownstown village,	200	
West Hempfield township, including part of the village of Chickies,		3,916
e Chickies village, (part of, see East Donegal township,)	90	
West Lampeter township, including the following villages,		2,026
e Lampeter village,	191	
e Willow Street village,	182	
Total,		139,444

NOTES.—Safe Harbor village, in Conestoga and Manor townships, 691.

The part of Chickies village which is in West Hempfield township has been separated, but thus far the enumerator of East Donegal township has failed to make the separation.

Lawrence County.

Big Beaver township, including the following villages,		1,645
e Clinton village,	596	
e Newport village,	308	
Hickory township, including village of East Brook,		1,002
e East Brook village,	134	
Little Beaver township, including village of Enon Valley,		1,282
e Enon Valley village,	471	
Mahoning township, including the following villages,		1,767
e Carbon village,	74	
e Edenburg village,	305	
e Hillsville village,	123	
Neshannock township,		1,364
New Castle city,		8,418
First ward,	2,101	
Second ward,	1,164	
Third ward,	2,002	
Fourth ward,	3,151	
New Wilmington borough,		628
New Beaver township, including village of Jackson,		1,984
e Jackson village,	173	
Perry township,		827
Plain Grove township,		787
Pulaski township, including the following villages,		1,684
e New Bedford village,	213	
e Pulaski village,	281	
Scott township, including village of Harlansburg,		985
e Harlansburg village,	195	

Shenango township,		2,040
Slippery Rock township, including the following villages,		1,741
e Princeton village,	130	
e Rosepoint village,	245	
Taylor township, including the following villages,		819
e East Moravia village,	54	
e Mahoningtown village,	312	
Union township,		2,418
Wampum borough,		786
Washington township,		634
Wayne township, including village of Chewton,		1,368
e Chewton village,	380	
Wilmington township, including village of Fayetteville,		1,132
e Fayetteville village,	93	
Total,		33,311

Lebanon County.

Bethel township, including the following villages,		2,332
e Brownsville village,	70	
e Fredericksburg village,	585	
e Greenville village,	58	
e Houtzville village,	24	
e Mt. Zion village,	60	
e Shirkville village,	48	
Cold Spring township,		40
Cornwall township, including village of Bismarck,		2,522
e Bismarck village,	340	
East Hanover township, including village of Mt. Nebo,		1,704
e Mt. Nebo village,	112	
Heidelberg township, including the following villages,		2,408
e Kleinfeltersville village,	144	
e Reistville village,	80	
e Sheafferstown village,	574	
Jackson township, including the following villages,		3,709
e Myerstown village,	1,580	
e Weaverstown village,	32	
e West Myerstown village,	168	
Jonestown borough,		703
Lebanon borough,		8,778
First ward,	1,825	
Second ward,	1,476	
Third ward,	1,006	
Fourth ward,	1,401	
Fifth ward,	1,602	
Sixth ward,	1,468	
Londonderry township, including the following villages,		2,454
e Campbellstown village,	221	
e Palmyra village,	531	
Mill Creek township, including the following villages,		2,238
e Newmanstown village,	511	
e Richland village,	297	
North Annville township, including the following villages,		2,134
e Annville village, (part of, see South Annville township,)	631	
e Belleview village,	136	
e Union Water Works village,	75	

North Lebanon township, including village of Independent,		2,560
e Independent village,	826	
South Annville township, including part of the village of Annville,		1,809
e Annville village, (part of,) (see North Annville township,)	800	
South Lebanon township, including the following villages,		2,117
e Avon village,	136	
e Hebrew village,	140	
e Ionia village,	80	
e Minerstown village,	295	
e Prescott village,	87	
Swatara township, including village of Mt. Ararat,		1,249
e Mt. Ararat village,	63	
Union township,		1,719
NOTE.—Annville village, in North Annville and South Annville townships,	1,431	
Total,		38,476

Lehigh County.

Allentown city,		18,063
First ward,	2,397	
Second ward,	2,172	
Third ward,	1,758	
Fourth ward,	1,999	
Fifth ward,	4,259	
Sixth ward,	2,603	
Seventh ward,	1,602	
Eighth ward,	1,273	
Catasauqua borough,		3,065
First ward,	1,460	
Second ward,	1,605	
Coopersburg borough,		392
Coplay borough,		774
Emaus borough,		847
Hanover township, including the following places,		3,813
e Cladesville hamlet,	96	
e East Allentown village,	516	
e West Bethlehem village,	1,414	
Heidelburg township, including the following villages,		1,567
e Germansville village,	87	
e Pleasant Corner village,	75	
e Sacquersville village,	123	
Lower Macungie township, including the following villages,		3,952
e Alburtis village,	500	
e Centerville village,	349	
e East Texas village,	238	
e Wescosville village,	134	
Lower Milford township, including village of Hosensack,		1,563
e Hosensack village,	132	
Lowhill township,		914
Lynn township, including the following villages,		2,678
e Lynn Port village,	105	
e New Tripolis village,	130	
e Stinesville village,	90	
Macungie borough,		701

North Whitehall township, including the following villages,		3,245
e Balliedsville village,	54	
e Ironton village,	277	
e Laury's village,	184	
e Ruchsville village,	92	
e Schnecksville village,	160	
Salisbury township, including village of Mountain,		3,078
e Mountain village,	108	
Slatington borough,		1,634
South Whitehall township, including the following places,		2,884
e Cedarville village,	135	
e Crackersport village,	65	
e Cuthesville village,	138	
e Griesemer's village,	76	
e Hoffmansville village,	78	
e Lehigh county alms-house,	286	
e Mechanicsville village,	100	
e Sharesville village,	56	
e Siegersville village,	36	
Upper Macungie township, including the following villages,		3,023
e Fogelsville village,	383	
e Trexlertown village,	382	
Upper Milford township, including the following villages,		2,475
e East Zionville village,	32	
e Vera Cruz village,	98	
e Zionsville village,	160	
Upper Saucon township,		3,228
Washington township, including the following villages,		2,517
e Franklin village,	215	
e Slatedale village,	335	
e Williamstown village,	115	
Weisenburg township,		1,627
Whitehall township, including the following villages,		3,929
e Fullerton village,	503	
e West Catasauqua village,	550	
Total,		65,696

Luzerne County.

Ashley borough,		2,799
Bear Creek township,		159
Black Creek township, including the following villages,		1,057
e Falls Run City village,	158	
e Gowen village,	117	
e Mountain Grove village,	65	
e Siewellville village,	121	
Buck township,		173
Butler township, including the following villages,		1,917
e Drum's village,	112	
e Upper Lehigh village,	551	
Conyngham township,		488
Dallas borough,		272
Dallas township,		879
Denison township,		976
Dorrance township,		639
Exeter township,		1,021

Fairmount township,		1,085
Foster township, including the following villages,		5,116
e Eckley village,	1,070	
e Foundryville village,	16	
e Highland village,	571	
e Lehigh Tannery village,	85	
e Mines No. 2 village,	125	
e Mines No. 3 village,	120	
e Oley Valley village,	35	
e Pond Creek Colliery village,	223	
e Sandy Valley village,	386	
e The Tunnel village,	32	
Franklin township, including the village of Orange,		593
e Orange village,	91	
Freeland borough,		624
Hanover township,		2,000
Hazel township, including the following villages,		10,547
e Cranberry village,	428	
e Crystalridge village,	142	
e Diamond Addition village,	88	
e Drifton village,	1,026	
e Ebervale village,	1,108	
e Harleigh village,	544	
e Hazleton Mines village,	226	
e Hollywood village,	260	
e Hornsville village,	46	
e Jeddo village,	1,021	
e Lattimer village,	784	
e Milnersville village,	572	
e West Hazleton village,	191	
Hazleton borough,		6,935
East ward,	3,960	
West ward,	2,975	
Hollenbeek township, including the village of Hobbie,		736
e Hobbie village,	91	
Hughestown borough,		1,192
Hunlock township,		759
Huntington township, including the following villages,		1,729
e Cambra village,	87	
e New Columbus village,	133	
e Town Hill village,	90	
Jackson township, including village of Huntsville,		661
e Huntsville village,	88	
Jeddo borough,		350
Jenkins township, including the following villages,		2,202
e Blanchard village,	187	
e Port Griffith village,	731	
e Sebastopol village,	654	
Kingston borough,		1,418
Kingston township, including the following villages,		5,878
e Forty Fort village,	478	
e Wyoming village,	1,147	
Lake township,		863
Lehman township,		940
Marey township,		1,158
Nanticoke borough,		3,884
New Columbus borough,		134

Nescopeck township, including the village of Nescopeck,		1,205
e Nescopeck village,	360	
Newport township,		1,531
Parsons borough,		1,498
Pittston township,		2,666
Pittston borough,		7,472
First ward,	1,080	
Second ward,	588	
Third ward,	979	
Fourth ward,	1,459	
Fifth ward,	1,194	
Sixth ward,	2,172	
Plains township,		5,354
Pleasant Valley borough,		1,913
Plymouth borough,		6,065
First ward,	847	
Second ward,	696	
Third ward,	1,125	
Fourth ward,†	1,139	
Fifth ward,†	858	
Sixth ward,	404	
Seventh ward,	558	
Eighth ward,	438	
Plymouth township, including the following villages,		7,318
e Avondale village,	349	
e Barn Hill village,	82	
e Grand Tunnel village,	550	
e Larksville village,	454	
e Turkey Hill village,	329	
e West Nanticoke village,	315	
Ross township, including village of Sweet Valley,		1,053
e Sweet Valley village,	162	
Salem township, including the village of Beach Haven,		1,448
e Beach Haven village,	300	
Shickshinny borough,		1,059
Slocum township,		377
Sugar Loaf township, including the village of Seybertsville,		1,390
e Seybertsville village,	69	
Sugar Notch borough,		1,582
Union township,		920
West Pittston borough,		2,544
White Haven borough,		1,408
Wilkes-Barre city,		23,339
First ward,	1,536	
Second ward,	1,684	
Third ward,	2,344	
Fourth ward,	1,301	
Fifth ward,	1,430	
Sixth ward,†	2,110	
Ninth ward,†		
Seventh ward,	1,077	
Eighth ward,	1,850	
Tenth ward,	1,330	
Eleventh ward,	1,925	
Twelfth ward,	1,152	
Thirteenth ward,	1,728	
Fourteenth ward,	2,974	
Fifteenth ward,	898	

Wilkes-Barre township, including the following villages,		2,445
e Franklin village,	237	
e Mount Pleasant village,	191	
e Powder Run village,	44	
e Stanton Hill village,	141	
Wright township, including the following villages,		880
e Fairview village,	165	
e Penobscot village,	389	
e Solomon's Gap village,	142	
Yatesville borough,		415
Total,		133,066

Lycoming County.

Anthony township,		592
Armstrong township,		1,431
Bastress township,		235
Brady township,		447
Brown township,		296
Cascade township,		514
Clinton township, including the following villages,		1,676
e Clintonville village,	115	
e Montgomery station village,	414	
Cogan House township,		1,002
Cummings township, including hamlet of Waterville,		319
e Waterville hamlet,	55	
Du Boistown borough,		662
Eldred township,		695
Fairfield township,		478
Franklin township, including village of Lairdsville,		994
e Lairdsville village,	160	
Gamble township,		779
Hepburn township,		856
Hughesville borough,		899
Jackson township,		621
Jersey Shore borough,		1,411
Jordan township,		825
Lewis township, including village of Trout Run,		1,066
e Trout Run village,	281	
Limestone township, including the following villages,		1,241
e Collinsville village,	171	
e Jamestown village,	86	
Loyalstock township,		1,818
Lycoming township,		639
McHenry township, including hamlet of Jersey Mills,		362
e Jersey Mills hamlet,	54	
McIntyre township, including the following villages,		1,637
e McIntyre village, (also called Langdon,)	1,230	
e Ralston village,	129	
McNett township,		399
Mifflin township, including village of Salladsburg,		1,138
e Salladsburg village,		312
Mill Creek township,		385
Montoursville borough,		1,193
Moreland township,		828
Muncy borough,		1,174

Muncy Creek township, including the following villages,		1,709
e Clarkstown village,	71	
e East Muncy village,	257	
e Pork Penn village,	202	
Muncy township, including village of Pennsville,		809
e Pennsville village,	94	
Nippenose township, including village of Granville,		656
e Granville village,	195	
Old Lycoming township,		554
Penn township,		793
Piatt township,		511
Picture Rocks borough,		321
Pine township,		640
Plunkett's Creek township, including village of Proctorsville,		777
e Proctorsville village,	208	
Porter township,		636
Shrewsbury township, including village of Tivoli,		474
e Tivoli village,	127	
Susquehanna township,		330
Upper Fairfield township, including village of Loyalstock,		808
e Loyalstock village,	111	
Washington township, including village of Elimsport,		1,1[illegible]2
e Elimsport village,	128	
Watson township,		316
Williamsport city,		18,934
First ward,	2,889	
Second ward,	1,417	
Third ward,	3,073	
Fourth ward,	2,634	
Fifth ward,	3,447	
Sixth ward	1,584	
Seventh ward,	1,772	
Eighth ward,	2,118	
Wolf township,		649
Woodward township, including the village of Linden,		785
e Linden village,	136	
Total,		57,486

McKean County.

Annin township,		1,089
Bradford city,		9,197
First ward,	2,622	
Second ward,	1,704	
Third ward,	2,063	
Fourth ward,	1,520	
Fifth ward,	1,288	
Bradford township,		2,700
Ceres township, including village of Ceres,		975
e Ceres village,	108	
Corydon township,		154
Duke Centre borough,		2,068
Eldred township, including the following villages,		3,243
e Eldred village,	1,165	
e Haymaker village,	220	
e Indian Creek village,	228	
e Larabee village,	200	
e State Line Mills village,	200	

Foster township, including village of Derrick City,		5,373
e Derrick City village,†	—	
Hamilton township, including village of Ludlow,		539
e Ludlow village,	215	
Hamlin township,		330
Keating township, including the following villages,		2,974
e Bordell village,	364	
e Colcville village,	986	
Kendall borough,		2,689
Lafayette township, including village of Buttsville,		1,266
e Buttsville village,	73	
Liberty township, including village of Port Allegheny,		2,029
e Port Allegheny village,	731	
Norwich township,		431
Otto township, including the following villages,		4,277
e Cansas Branch village,	249	
e Fullerton village,	145	
e Oil Valley village,	737	
e Pixford village,	1,127	
e Prentiss Vale village,	136	
e Train Hollow village,	231	
e Windfall village,	16	
Sergeant township,		922
Smethport borough,		872
Wetmore township,		1,438
Total,		42,566

Mercer County.

Bethel borough,		151
Clarksville borough,		264
Coolspring township,		970
Deer Creek township,		581
Delaware township, including village of New Hamburg,		1,616
e New Hamburg village,	179	
East Lackawannock township,		660
Fairview township, including village of Fairview,		834
e Fairview village,	62	
Findley township,		1,609
Fredonia borough,		323
French Creek township,		1,093
Greene township,		881
Greenville borough,		3,007
First ward,	980	
Second ward,	1,275	
Third ward,	752	
Hempfield township,		1,006
Hickory township,		5,926
Jackson township,		1,111
Jamestown borough,		974
Jefferson township,		1,126
Lackawannock township, including village of Greenfield,		1,092
e Greenfield village,	137	
Lake township,		638
Liberty township,		642
Mercer borough,		2,344
North ward,	1,308	

South ward,	1,036	
Mill Creek township,		876
New Lebanon borough,		279
New Vernon township, including village of New Vernon,		845
e New Vernon village,	60	
Otter Creek township,		530
Perry township, including the following villages,		1,160
e Clark's Mills village,	75	
e Hadley village,	224	
Pine township, including village of Pine Grove,		1,652
e Pine Grove village,	485	
Pymatuning township,		2,319
Salem township,		592
Sandy Creek township,		745
Sandy Lake borough,		730
Sandy Lake township,		1,097
Sharon borough,		5,684
East ward,	2,259	
South ward,	1,257	
West ward,	2,168	
Sharpsville borough,		1,825
Sheakleyville borough,		222
Shenango township,		1,595
Springfield township, including the following villages,		1,464
e Blacktown village,	71	
e Leechburgh village,	118	
Stoneboro' borough,		1,186
Sugar Grove township,		655
West Middlesex borough,		918
West Salem township, including village of Shenango,		2,071
e Shenango village,	160	
Wheatland borough,		583
Wilmington township,		556
Wolf Creek township,		636
Worth township, including the following villages,		1,094
e Hendersonville village,	63	
e Mill Brook village,	94	
Total,		56,162

Mifflin County.

Armagh township, including village of Milroy,		2,067
e Milroy village,	526	
Bratton township,		1,028
Brown township,		1,376
Decatur township, including village of Silleysville,		1,406
e Silleysville village,	115	
Derry township, including the following villages,		2,670
e Kelly village,	45	
e Logan village,	609	
e Maitland village,	145	
e Shaw's Hill village,	147	
e Weeksburgh village,	163	
e Yeagertown village,	532	
Granville township,		1,489

Lewistown borough,		3,222
East ward,	1,758	
West ward,	1,464	
McVeytown borough,		679
Menno township, including village of Allenville,		1,191
e Allenville village,	282	
Newton Hamilton borough,		317
Oliver township,		1,386
Union township, including the following villages,		1,417
e Belleville village,	268	
e Mechanicsville village,	118	
Wayne township,		1,329
Total,		19,577

Monroe County.

Barret township, including the following villages,		1,149
e Canadensis village,	132	
e Mountain Home village,	281	
Chestnut Hill township,		1,513
Coolbaugh township, including the village of Tobyhanna,		1,223
e Tobyhanna village,	598	
East Stroudsburg borough,		1,102
Eldred township,		877
Hamilton township,		1,875
Jackson township,		802
Middle Smithfield township,		1,339
Paradise township,		688
Pocono township, including the village of Tannersville,		1,208
e Tannersville village,	324	
Polk township,		1,100
Price township,		252
Ross township,		710
Smithfield township, including the following villages,		1,667
e Delaware Water Gap village,	201	
e Dutchbury village,	200	
Stroud township,		1,680
Stroudsburg borough,		1,860
Tobyhanna township,		838
Tunkhannock township,		292
Total,		20,175

Montgomery County.

Abington township,		2,185
Bridgeport borough,		1,802
Cheltenham township, including the following villages,		3,236
e Ashbourne village,	342	
e Camptown village,	206	
e Edge Hill village,	295	
Conshohocken borough,		4,561
First ward,	1,726	
Second ward,	2,835	

Douglass township, including village of Gilbertville,		1,676
e Gilbertville village,	284	
East Greenville borough,		331
Franconia township,		2,556
Frederick township, including the following villages,		1,944
e Frederick village,	104	
e Perkiomenville village, (part of,) (see Marlborough township,)	50	
e Roseville village,	70	
e Schwenksville village, (part of,) (see Perkiomen township,)	56	
Green Lane borough,		187
Gwynedd township, including village of West Point,		2,041
e West Point Village,†	——	
Hatboro' borough,		586
Hatfield township,		1,694
Horsham township,		1,315
Jenkintown borough,		810
Lansdale borough,		798
Limerick township,		2,365
Lower Merion township, including the following villages,		6,287
e Ardmore village,	519	
e Libertyville village,	74	
e Merion Square village,	207	
e Merionville village,	127	
Lower Providence township,		1,586
Lower Salford township, including the following villages,		1,828
e Harleysville village,	227	
e Mainland village,	80	
Marlborough township, including the following villages,		1,212
e Hoppenville village,	65	
e Perkiomenville village (part of,) (see Frederick township,)	68	
e Sumneytown village,	193	
Mooreland township, including village of Huntingdon,		1,746
e Huntingdon village,	154	
Montgomery township,		876
New Hanover township,		1,905
Norristown borough,		13,063
First ward,	2,774	
Second ward,	2,364	
Third ward,	2,572	
Fourth ward,	2,310	
Fifth ward,	3,043	
Norriton township,		1,368
North Wales borough,		673
Perkiomen township, including the following villages,		2,515
e Grater's Ford village,	148	
e Rahn's Station village,	191	
e Schwenksville village, (part of,) (see Frederick township,)	247	
Plymouth township,		1,916
Pottsgrove township,		3,985
Pottstown borough,		5,305
East ward,	1,856	
Middle ward,	2,270	
West ward,	1,179	
Royer's Ford borough,		558
Springfield township,		1,535
Towamensing township, including village of Kulpsville,		1,282
e Kulpsville village,	311	

Upper Dublin township, including village of Ambler,		1,856
e Ambler village,	251	
Upper Hanover township,		2,408
Upper Merion township including the following villages,		3,275
e Matsunk, or Snedland village,	691	
e Mechaimsville village,	198	
Upper Providence township,		3,592
Upper Salford township, including village of Tylersport,		1,866
e Tylersport village,	224	
West Conshohocken borough,		1,462
Whitemarsh township, including the following villages,		3,238
e Barren Hill village,	416	
e Cedar Grove village,	129	
e Fort Washington village,	80	
e Harmonyville village,	72	
e La Fayette village,	139	
e Marble Hall village,	122	
e Spring Mill village,	788	
Whitepaine township, including village of Blue Bell,		1,429
e Blue Bell village,	61	
Worcester township, including village of Fairview,		1,641
e Fairview village,	59	
Total,		96,494

NOTES.—Perkiomenville village, in Frederick and Marlborough townships, 118.
Schwenksville village, in Frederick and Perkiomen townships, 303.

Montour County.

Anthony township,		1,042
Cooper township,		383
Danville borough,		8,346
Derry township,		814
Liberty township, including village of Mooresburg,		1,166
e Mooresburg village,	99	
Limestone township, including village of Limestoneville,		731
e Limestoneville village,	59	
Mahoning township,		1,142
Mayberry township,		230
Valley township,		1,014
Washingtonville borough,		203
West Hemlock township,		395
Total,		15,466

Northampton County.

Allen township, including the following villages,		2,602
e Howerton village,	47	
e Kreiderville village,	87	
e Laubach village,	53	
e Newport village,	77	
e Seemsville village,	16	
e Siegfried's Bridge village,	233	
e Stemton village,	289	
Bangor borough,		1,328
Bath borough,		698
Bethlehem borough,		5,198

First ward,	1,439	
Second ward,	1,726	
Third ward,	1,122	
Fourth ward,	906	
Bethlehem township, including the village of Butztown,		2,282
e Butztown village,	69	
Bushkill township,		1,779
Chapman borough,		382
East Allen township,		1,195
Easton borough,		11,924
First ward,	1,708	
Second ward,	1,415	
Third ward,	1,262	
Fourth ward,	1,133	
Fifth ward,	1,655	
Sixth ward,	2,815	
Seventh ward,	1,936	
Forks township, including the following villages,		1,382
e Mosertown village,	51	
e Sheonertown village,	53	
Freemansburg borough,		634
Glendon borough,		982
Hanover township,		503
Hellertown borough,		605
Lehigh township, including town of Cherryville,		3,338
e Cherryville town,	123	
Lower Mt. Bethel township,		1,561
Lower Nazareth township,		1,102
Lower Saucon township, including the following villages,		5,304
e Bingen village,	172	
e Leithville village,	136	
e Redington village,	354	
e Seidersville village,	114	
Moore township, including the following villages,		2,728
e Beersville village,	49	
e Cross-roads village,	47	
e Moorestown village,	64	
Nazareth borough,		984
Palmer township, including village of Stockertown,		2,022
e Stockertown village,	143	
Plainfield township, including village of Penargyle,		2,468
e Penargyle village,	572	
Portland borough,		608
South Bethlehem borough,		4,926
First ward,	1,620	
Second ward,	2,332	
Third ward,	924	
South Easton borough,		4,534
First ward,	1,482	
Second ward,	2,233	
Third ward,	819	
Upper Mt. Bethel township, including the following villages,		3,647
e Centreville village,	140	
e East Bangor village,	335	
e Johnsonville village,	141	
e Pleasant Valley village,	61	
e Slateford village,	143	

e Williamsburg village,	330	
Upper Nazareth township,		838
Washington township, including the following villages,		1,920
e Ackermanville village,	172	
e Hicksville village,	107	
Williams township,		2,847
Total,		70,316

Northumberland County.

Cameron township, including the following villages,		976
e Dotyville village,	194	
e Gowen City village,	42	
Chillisquaque township,		1,737
Coal township, including the following villages,		4,320
e Bear Valley village,	350	
e Big Mountain village,†	—	
e Boydtown village,	94	
e Brady village,	306	
e Burnside village,†	—	
e Coal Run village,†	—	
e Continental village,	121	
e East Shamokin village,	48	
e Enterprise village,	323	
e Excelsior village,	265	
e Fidlers Green village,	72	
e Lake Fidlers village,	154	
e Maysville village,	46	
e Scotchhill village,†	—	
e Springfield village,	550	
e Sterling village,†	—	
e Swamp village,†	—	
e Taneytown village,†	—	
e West Shamokin village,	223	
Delaware township, including village of Demart,		2,037
e Demart village,	241	
Jackson township, including village of Herndon,		959
e Herndon village,	306	
Jordan township,		973
Lewis township,		1,173
Little Mahanoy township,		326
Lower Augusta township,		1,194
Lower Mahanoy township,		1,866
McEwensville borough,		283
Milton borough,		2,102
North ward,	1,046	
South ward,	1,056	
Mount Carmel township,		3,126
Mount Carmel borough,		2,378
Northumberland borough,		2,293
Point township,		926
Riverside borough,		336
Rockfeller township,		836
Rush township,		1,263
Shamokin township, including village of Elysburg,		2,218
e Elysburg village,	138	

Shamokin borough,		8,184
First ward,	2,130	
Second ward,	2,328	
Third ward,	1,671	
Fourth ward,	2,055	
Snydertown borough,		209
Sunbury borough,		4,077
East ward,	1,822	
West ward,	2,255	
Turbot township,		2,821
Turbotville borough,		414
Upper Augusta township, including the village of Purdytown,		1,735
e Purdytown village,	725	
Upper Mahanoy township,		922
Washington township,		811
Watsontown borough,		1,481
Zerbe township,		1,147
Total,		53,123

Perry County.

Blain borough,		270
Bloomfield borough,		673
Buffalo township, including village of Mt. Patrick,		703
e Mt. Patrick village,	50	
Carroll township, including village of Shermansdale,		1,417
e Shermansdale village,	71	
Centre township,		1,120
Duncannon borough, (formerly called Petersburg borough,)		1,027
Greenwood township,		1,109
Howe township,		398
Jackson township,		1,004
Juniata township, including village of Markelville,		958
e Markelville village,	108	
Landsburg borough,		336
Liverpool borough,		838
Liverpool township,		825
Madison township,		1,699
Marysville borough,		1,206
Miller township,		379
Millerstown borough,		652
New Buffalo borough,		222
New Germantown borough,		105
Newport borough,		1,399
Oliver borough,		811
Penn township, including the following villages,		1,771
e Baskinsville village,	358	
e Lower Duncannon village,	492	
Rye township,		849
Saville township, including village of Ickesburgh,		1,743
e Ickesburgh village,	247	
Spring township, including village of Elliottsburg,		1,538
e Elliottsburg village,	137	
Toboyne township,		748
Tuscarora township, including village of Donally's Mills,		995
e Donally's Mills village,	96	

Tyrone township, including the following villages,	1,486
e Greenport village,	131
e Loysville village,	360
Watts township,	451
Wheatfield township,	790
Total,	27,522

City of Philadelphia.

WARDS.	Total.	Males.	Females.	Native.	Foreign.	White.	Colored.*
First ward,	43,085	21,169	21,916	34,938	8,147	42,340	745
Second ward,	28,498	13,538	14,960	21,391	7,107	28,038	460
Third ward,	18,271	8,699	9,572	12,834	5,437	17,644	627
Fourth ward,	18,853	9,322	9,531	12,945	5,908	16,265	2,588
Fifth ward,	16,368	8,094	8,274	11,686	4,682	13,629	2,739
Sixth ward,	10,004	5,336	4,668	6,553	3,451	9,818	186
Seventh ward,	31,087	13,572	17,515	23,666	7,421	4,079	7,008
Eighth ward,	19,545	8,187	11,358	14,575	4,970	16,461	3,084
Ninth ward,	12,481	5,982	6,499	8,994	3,487	12,065	416
Tenth ward,	23,363	10,560	12,803	17,801	5,562	22,483	880
Eleventh ward,	12,980	6,700	6,230	8,591	4,339	12,878	52
Twelfth ward,	14,690	7,134	7,556	10,431	4,259	14,141	549
Thirteenth ward,	18,646	8,514	10,132	14,547	4,099	18,170	476
Fourteenth ward,	22,354	10,402	11,952	18,151	4,203	21,171	1,183
Fifteenth ward,	47,865	22,674	25,191	36,789	11,076	46,503	1,362
Sixteenth ward,	17,802	8,730	9,072	12,654	5,148	17,695	107
Seventeenth ward,	20,451	9,981	10,470	13,583	6,868	20,271	180
Eighteenth ward,	29,354	14,661	14,693	23,370	5,984	29,341	13
Nineteenth ward,	43,887	21,866	22,021	30,664	13,223	43,624	263
Twentieth ward,	43,207	19,804	23,403	34,540	8,667	42,368	839
Twenty-first ward,	19,699	9,435	10,264	14,542	5,157	19,614	85
Twenty-second ward,	31,798	14,472	17,326	24,166	7,632	30,811	987
Twenty-third ward,	26,522	13,076	13,446	21,651	4,871	25,447	1,075
Twenty-fourth ward,	46,057	22,270	23,787	37,548	8,509	44,749	1,308
Twenty-fifth ward,	36,104	18,426	17,678	26,414	9,690	35,631	473
Twenty-sixth ward,	35,138	17,538	17,600	26,876	8,262	34,652	486
Twenty-seventh ward,	23,284	10,937	12,347	18,294	4,990	24,739	1,545
Twenty-eighth ward,	34,442	16,454	17,988	27,818	6,624	33,865	577
Twenty-ninth ward,	40,787	19,021	21,763	33,663	7,124	39,898	889
Thirtieth ward,	29,100	13,736	15,364	20,288	8,812	28,499	601
Thirty-first ward,	31,308	15,606	15,702	22,685	8,623	31,293	15
The City,	846,980	405,899	441,081	642,648	204,332	815,182	31,798

* Including, in the city, 80 Chinese, 3 Japanese, and 25 Indians. In the First ward, 1 Chinese and 3 Indians; Second ward, 3 Chinese; Third ward, 2 Chinese; Fourth ward, 6 Chinese and 5 Indians; Fifth ward, 18 Chinese and 1 Indian; Sixth ward, 5 Chinese; Seventh ward, 1 Chinese and 4 Indians; Eighth ward, 8 Chinese and 5 Indians; Ninth ward, 7 Chinese; Tenth ward, 8 Chinese and 1 Japanese; Eleventh ward, 3 Chinese; Twelfth ward, 6 Chinese; Thirteenth ward, 1 Chinese; Fourteenth ward, 2 Chinese; Fifteenth ward, 2 Indians; Sixteenth ward, 3 Chinese; Seventeenth ward, 1 Chinese; Twenty-second ward, 3 Chinese, 1 Japanese, and 1 Indian; Twenty-fourth ward, 1 Indian; Twenty-fifth ward, 3 Indians; Twenty-seventh ward, 1 Japanese; Thirtieth ward, 2 Chinese.

Pike County.

Blooming Grove township,	472
Delaware township,	804
Dingman township,	606
Green township,	1,168
Lackawaxen township,	1,588
Lehman township, including village of Bushkill,	813
e Bushkill village,	88
Milford borough,	983
Milford township,	207
Palmyra township,	667
Porter township,	99
Shohola township,	715
Westfall township, including the village of Metamoras,	1,542
e Metamoras village,	944
Total,	9,664

Potter County.

Abbott township, including village of Germania,		623
e Germania village,	101	
Allegany township,		672
Bingham township,		832
Clara township,		238
Coudersport borough,		677
Eulalia township,		554
Genessee township,		998
Harrison township,		1,162
Hebron township,		835
Hector township,		958
Homer township,		189
Keating township,		204
Lewisville borough,		365
Oswayo township, including village of Oswayo,		768
e Oswayo village,		321
Pike township,		281
Pleasant Valley township,		211
Portage township,		114
Roulet township,		648
Sharon township, including the following villages,		1,055
e Millport village,	49	
e Sharon Centre village,	35	
Stewardson township,		223
Summit township,		202
Sweden township,		416
Sylvania township,		215
Ulysses township,		638
West Branch township,		374
Wharton township,		346
Total,		13,798

Schuylkill County.

Ashland borough,		6,052
East ward,	1,589	
Middle ward,	1,995	
West ward,	2,468	
Auburn borough,		740
Barry township,		1,041
Blythe township, including the following villages,		1,049
e Bear Ridge village,	28	
e Combola village,	305	
e Eagle Hill village,	116	
e Jos. Weildsatch village,	26	
e Silver Creek village,	185	
e Tucker Hill village,	92	
e Tumbling Run village,	71	
e Valley Furnace village,	145	
e Whitefield Patch village,	81	
Branch township, including village of Llewellyn,		986
e Llewellyn village,	394	
Butler township, including the following villages,		4,815
e Big Mine Run village,	371	
e Boyersville village,	63	

e Colorado village,	144	
e Connor's Patch village,	362	
e Fountain Springs village,	228	
e Glearingsville village,	44	
e Gordon village,	753	
e Homesville village,	199	
e Hunter's Mining Patch village,	170	
e Preston Hill village,	320	
e Preston's Mining Patch village,	76	
e Rappahannock village,	731	
e Rocktown village,	207	
e West Girardville village,	181	
e Wild Cat Run village,	101	
Cass township, including the following villages,		3,004
e Black Heath village,	48	
e Black Valley village,	155	
e Coal Castle village,	443	
e Delaware village,	85	
e Forrestville village,	252	
e Heekscherville village,	439	
e Jonestown village,	194	
e Mackeyburg village,	147	
e Mine Hill Gap village,	126	
e North Oak Hill village,	86	
e Primrose village,	196	
e South Delaware village,	47	
e South Oak Hill village,	104	
e Thomaston village,	321	
e Woodside village,	321	
e York Tunnel village,	40	
Cressona borough,		1,455
East Brunswick township,		1,544
East Norwegian township,		700
East Union township, including village of Brandonville,		588
e Brandonville village,	142	
Eldred township, including the following villages,		1,190
e Helfenstein village,	122	
e Zimmermantown village,	76	
Foster township,		690
Frackville borough,		1,707
Frailey township, including the following villages,		1,307
e Donaldson village,	979	
e East Franklin village,	148	
e Eckertsville village,	49	
e Middle Creek village,	131	
Gilberton borough,		3,098
East ward,	1,029	
Middle ward,	449	
West ward,	1,620	
Girardville borough,		2,730
Hegins township, including village of Valley View,		1,430
e Valley View village,	251	
Hubley township,		740
Klein township, including the following villages,		1,538
e Brack Hills village,	43	
e Bunker Hill village,	140	
e Clapper Street village,	449	

e Mountain village,	44	
e New Pottsville village,	91	
e Old Honey Brook village,	296	
e Shanty Row village,	267	
e Silver Brook village,	136	
e Summit Station village,	72	
Mahanoy City borough,		7,181
First ward,	1,675	
Second ward,	1,627	
Third ward,	1,176	
Fourth ward,	1,272	
Fifth ward,	1,431	
Mahanoy township, including the following villages,		4,450
e Barrey's village,	82	
e Bear Run village,	367	
e Boston Run village,	359	
e Bowman's village,	238	
e Cake's village,	338	
e Cole's village,	260	
e Craig's village,	26	
e Grantsville village,	402	
e Hill's village,	114	
e Lanigen's village,	487	
e Myersville village,	79	
e New Boston village,	1	
e Robinson's village,	168	
e Shoemaker's village,	128	
e Suffolk village,	398	
e Yatesville village,	708	
Middleport borough,		230
Minersville borough,		3,249
East ward,	1,827	
West ward,	1,422	
Mount Carbon borough,		327
Newcastle township, including the following villages,		1,512
e Laffoe village,	288	
e Newcastle village,	350	
e Wadesville village,	874	
New Philadelphia borough,		360
New Ringgold borough,		100
North Manheim township, including the following villages,		2,607
e East Manheim village,	681	
e Landingville village,	712	
e Nose Dale village,	778	
North Union township, including village of Leipelville,		848
e Leipelville village,	112	
Norwegian township,		932
Orwigsburg borough,		792
Palo Alto borough,		1,588
Pine Grove township, including village of North Pine Grove,		2,327
e North Pine Grove village,	160	
Pine Grove borough,		957
Port Carbon borough,		2,346
Port Clinton borough,		686
Porter township,		2,625
Pottsville borough,		13,253
Middle ward,	2,763	

North ward,	1,329	
Northeast ward,	2,283	
Northwest ward,	2,459	
Seventh ward,	829	
South ward,	2,389	
Southeast ward,	1,201	
Rahn township,		2,129
Reilly township, including the following villages,		1,452
e Branchdale village,	737	
e Newtown village,	385	
e Swatara village,	205	
Rush township, including the following villages,		1,522
e Barnesville village,	103	
e Delano village,	434	
Ryon township,		599
St. Clair borough,		4,149
Middle ward,	1,396	
North ward,	1,217	
South ward,	1,536	
Schuylkill Haven borough,		3,052
East ward,	1,044	
North ward,	677	
South ward,	957	
West ward,	374	
Schuylkill township, including the following villages,		521
e Lewiston village,	27	
e New Kirk village,	81	
e Patterson village,	159	
e Tuscarora,	227	
Shenandoah borough,		10,148
First ward,	2,631	
Second ward,	1,275	
Third ward,	2,197	
Fourth ward,	1,404	
Fifth ward,	2,641	
South Manheim township,		906
Tamaqua borough,		5,730
East ward,	2,020	
North ward,	1,962	
South ward,	1,748	
Tremont borough,		1,785
Tremont township,		1,001
Union township,		1,292
Upper Mahantango township,		718
Walker township,		510
Washington township,		1,352
Wayne township, including the following villages,		1,630
e Friedensburgh village,	74	
e Summit Station village,	81	
West Brunswick township,		1,358
West Mahanoy township,		4,494
West Penn township, including village of West Penn,		2,215
e West Penn village,	6	
Yorkville borough,		640
Total,		129,977

Snyder County.

Adams township, including village of Troxelville,		831
e Troxelville village,	72	
Beaver township, including the following villages,		1,407
e Adamsburg village,	233	
e Beavertown village,	363	
Centre township, including village of Centreville,		1,060
e Centreville village,	250	
Chapman township,		1,126
Franklin township, including the following villages,		1,247
e Franklin village,	130	
e Paxtonville village,	163	
Jackson township, including village of Kratzerville,		728
e Kratzerville village,	98	
Middleburg borough,		398
Middle Creek township, including village of Kreamer,		727
e Kreamer village,	79	
Monroe township, including village of Shamokin Dam,		1,177
e Shamokin Dam village,	307	
Penn township, including the following places,		1,373
e Kider town,	91	
e Salem village,	40	
Perry township, including the following villages,		1,212
e Fremont village,	100	
e Mt. Pleasant Mills village,†	—	
Selin's Grove borough,	1,431	
Union township, including village of Trevorton,		1,251
e Trevorton village,	319	
Washington township, including village of Freeburg,		1,725
e Freeburg village,	523	
West Beaver township, including the following villages,		1,355
e Bannersville village,	69	
e McClure village,	94	
West Perry township,		749
Total,		17,979

Somerset County.

Addison township, including the following villages,		1,582
e Listonburg village,	50	
e Petersburg village,	227	
e Somerfield village,	100	
Allegheny township,		1,201
Berlin borough,		729
Brothers Valley township,		1,654
Conemaugh township,		1,379
Confluence borough,		430
Elk Lick township,		1,501
Greenville township,		557
Jefferson township,		807
Jenner township, including the following villages,		1,725
e Jenner Cross-Roads village,	85	
e Quemahoning village,	37	
e Stanton Mills village,	66	
Jennerville borough,		106

Larimer township,		618
Lower Turkeyfoot township, including village of Harnedsville,		805
e Harnedsville village,	88	
Meyersdale borough,		1,423
Middle Creek township,		680
Milford township, including village of Rockwood,		1,776
e Rockwood village,	331	
New Baltimore borough,		151
New Centreville borough,		140
Northampton township, including the following villages,		842
e Glencoe village,	58	
e South Hampton Mills village,	59	
Paint township,		1,236
Quemahoning township,		1,339
Salisbury borough,		521
Shade township,		1,287
Somerset borough,		1,197
Somerset township, including the following villages,		3,310
e Fridensburg village,	57	
e Lavansville village,	144	
e Sipersville village,	39	
Southampton township,		629
Stony Creek township,		1,727
Stoystown borough,		319
Summit township, including the following villages,		1,851
e Garrett village,	253	
e Glade City village,	109	
e Mechanicsburg village,	150	
Upper Turkeyfoot township, including the following villages,		953
e Casselman village,	88	
e Kingwood village,	50	
Ursina borough,		445
Wellersburg borough,		226
Total,		33,146

Sullivan County.

Cherry township,		2,172
Colley township,		373
Davidson township,		955
Dushore borough,		377
Elkland township,		879
Forks township, including village of Forksville,		964
e Forksville village,	108	
Fox township,		661
Hills Grove township, including village of Hills Grove,		485
e Hills Grove village,	230	
Laporte borough,		192
Laporte township, including village of Thorndale,		672
e Thorndale village,	121	
Shrewsbury township,		343
Total,		8,073

Susquehanna County.

Apolacon township,		539
Ararat township,		639
Auburn township,		2,089
Bridgewater township,		1,517
Brooklyn township, including village of Brooklyn,		1,100
e Brooklyn village,	156	
Choconut township,		537
Clifford township,		1,454
Dimock township,		1,071
Dundaff borough,		171
Forest Lake township,		990
Franklin township,		815
Friendsville borough,		176
Gibson township, including the following hamlets,		1,350
e Gelatt hamlet,	47	
e Gibson hamlet,	154	
e South Gibson hamlet,	152	
Great Bend borough,		1,136
Great Bend township,		1,301
Great Bend Village borough,		546
Harford township, including village of Harford,		1,505
e Harford village,	203	
Harmony township, including village of Lanesboro',		1,924
e Lanesboro' village,	348	
Herrick township, including the following places,		1,104
e Herrick Centre hamlet,	172	
e Uniondale village,	146	
Jackson township, including hamlet of Jackson corners,		1,095
e Jackson Corners hamlet,	82	
Jessup township,		761
Lathrop township,		1,054
Lennox township, including the following villages,		1,730
e Glenwood village,	175	
e Lennoxville village,	108	
Liberty township,		1,108
Little Meadows borough,		159
Middletown township,		833
Montrose borough,		1,722
New Milford borough,		803
New Milford township, including the following villages,		1,464
e East New Milford village,	48	
e Summersville village,	80	
Oakland township,		1,415
Rush township, including village of Rushville,		1,357
e Rushville village, †	—	
Silver Lake township,		1,105
Springville township, including village of Springvil e,		1,409
e Springville village,	165	
Susquehanna Depot borough,		3,467
Thompson township,		656
Thompson borough,		249
Total,		40,351

Tioga County.

Bloss township, including town of Arnot,		2,814
e Arnot town,	2,783	
Blossburg borough,		2,140
Broofield township,		910
Charleston township, including the following villages,		2,193
e Card Town village,	44	
e Cherry Flats village,	30	
e Whitneyville village,	112	
Chatham township,		1,317
Clymer township, including the village of Sabinsville,		1,121
e Sabinsville village,	170	
Covington borough,		343
Covington township,		1,134
Deerfield township,		908
Delmar township,		2,524
Duncan township,		1,791
Elk township, including village of Letonia,		462
e Letonia village,	195	
Elkland borough,		470
Fallbrook borough,		860
Farmington township,		995
Gaines township,		508
Hamilton township,		2,060
Jackson township,		1,824
Knoxville borough,		459
Lawrence township,		1,168
Lawrenceville borough,		426
Liberty township,		1,629
Mainsburg borough,		239
Mansfield borough,		1,611
Middlebury township, including village of Keeneyville,		1,737
e Keeneyville village,	133	
Morris township,		622
Nelson township,		604
Osceola township,		790
Richmond township,		1,512
Roseville borough,		185
Rutland township,		1,064
Shippen township,		441
Sullivan township,		1,345
Tioga borough,		520
Tioga township,		1,258
Union township,		1,789
Ward township,		327
Wellsboro' borough,		2,228
Westfield borough,		579
Westfield township,		907
Total,		45,814

Union County.

Buffalo township,		1,714
East Buffalo township,		1,010
Gregg township, including the following villages,		904
e Alvira village,	63	
e Uniontown village,	156	

Hartleton borough,		300
Hartley township,		1,561
Kelly township, including the following villages,		1,041
e Kelley Cross Roads village,	40	
e West Milton village,	42	
Lewis township,		845
Lewisburg borough,		3,080
North ward,	1,323	
South ward,	1,103	
West ward,	654	
Limestone township,		880
Mifflinburg borough,		1,168
New Berlin borough,		605
Union township,		724
West Buffalo township,		1,208
White Deer township, including village of New Columbia,		1,865
e New Columbia village,	319	
Total,		16,905

Venango County.

Allegheny township, including village of Shamburg,		1,043
e Shamburg village,	484	
Canal township,		1,030
Cherry Tree township,		1,618
Clinton township, including village of Kennerdell,		1,752
e Kennerdell village,	83	
Clintonville borough,		339
Cooperstown borough,		297
Cornplanter township, including the following villages,		3,238
e Rynd village,	186	
e Columbia village,	102	
e Farr village,	59	
e Kane City village,	209	
e Petroleum Centre village,	295	
e Pioneer village,	82	
e Plumer village,	168	
e Rouseville village,	688	
Cranberry township,		2,434
Emlenton borough,		1,140
Franklin city,		5,010
First ward,	2,040	
Second ward,	2,325	
Third ward,	645	
French Creek township, including village of Waterloo,		1,286
e Waterloo village,	185	
Irwin township, including the following villages,		1,584
e Barkeyville village,	95	
e Mechanicsville village,	106	
Jackson township,		789
Mineral township, including village of Raymilton,		831
e Raymilton village,	97	
Oakland township, including village of Dempseytown,		1,214
e Dempseytown village,	141	
Oil City,		7,315
Oil Creek township,		526
Pinegrove township,		956

Pleasantville borough,		855
Plum township, including the following villages,		1,116
e Bradleytown village,	85	
e Chapmanville village,	92	
e Wallaceville village,	50	
President township,		416
Richland township,		1,221
Rockland township, including the following villages,		1,977
e Freedom village,	55	
e Scrub Grass village,	135	
Sandy Creek township,		804
Scrub Grass township,		1,503
Siverly borough,		667
Sugar Creek township,		1,923
Sunville borough,		108
Utica borough,		301
Victory township,		377
Total,		43,670

Warren County.

Brokenstraw township,		1,212
Cherry Grove township,		158
Columbus borough,		421
Columbus township,		1,242
Conewango township, including village of North Warren,		1,478
e North Warren village,	494	
Corydon township, including village of Corydon,		335
e Corydon village,	243	
Deerfield township,		657
Eldred township, including village of Enterprise,		975
e Enterprise village,	178	
Elk township,		637
Farmington township, including village of Lander,		1,149
e Lander village,	122	
Freehold township, including the following villages,		1,574
e Bear Lake village,	154	
e Lottsville village,	115	
e Wrightsville village,	122	
Glade township, including the following villages,		1,622
e Cornplanter village,	130	
e Glade City village,	672	
Kinzua township, including village of Kinzua,		348
e Kinzua village,	177	
Limestone township,		446
Mead township, including the following villages,		1,155
e Clarendon village,	295	
e Stoneham village,	241	
e Tiona village,	85	
Pine Grove township, including village of Russellburg,		1,332
e Russellburg village,†	—	
Pittsfield township, including village of Garland,		1,740
e Garland village,	422	
Pleasant township,		395
Sheffield township, including town of Sheffield,		1,424

e Sheffield town,	684	
South West township,		482
Spring Creek township,		1,309
Sugar Grove borough,		492
Sugar Grove township,		1,369
Tidioute borough,		1,255
Triumph township, including village of Triumph,		1,100
e Triumph village,	148	
Warren borough,		2,810
Watson township,		258
Youngsville borough,		606
Total,		27,981

Washington County.

Allen township, including village of Allenport,		1,236
e Allenport village,	163	
Amwell township, including village of Clarktown,		1,900
e Clarktown village,	75	
Beallsville borough,		376
Bentleysville borough,		263
Buffalo township, including village of Taylorstown,		1,260
e Taylorstown village,	95	
California borough,		1,009
Canonsburg borough,		699
Canton township,		605
Carrol township,		2,064
Cecil township,		1,596
Chartiers township, including village of Hustonville,		2,188
e Hustonville village,	87	
Claysville borough,		323
Cross Creek township, including village of Cross Creek,		1,136
e Cross Creek village,	195	
Donegal township,		1,375
East Bethlehem township, including the following villages,		1,716
e Centreville village, (part of,) (see West Pike Run township,)	89	
e Fredericktown village,	150	
East Finley township,		1,332
East Pike Run township, including village of Millsboro',		1,478
e Millsboro' village,	250	
Fallowfield township, including village of Fallowfield,		811
e Fallowfield village,	114	
Franklin township, including the following villages,		1,189
e Rankintown village,	92	
e Van Buren village,	32	
Greenfield borough,		557
Hanover township, including village of Paris,		1,880
e Paris village,	86	
Hopewell township,		798
Independence township, including village of Independence,		1,012
e Independence village,	162	
Jefferson township, including village of Eldersville,		979
e Eldersville village,	179	
Monongahela city,		2,904
Morris township,		1,161

Mt. Pleasant township, including village of Hickory,		1,577
e Hickory village,	205	
North Strabane township,		1,324
Nottingham township,		868
Peters township, including the following villages,		955
e Bower Hill village,	35	
e Thompsonville village,	28	
Robinson township, including the following villages,		1,798
e Candor village,	60	
e McDonald village,	425	
e Midway village,	581	
e Snipesville village,	87	
Smith township, including village of Burgettstown,		2,449
e Burgettstown village,	876	
Somerset township,		983
South Strabane township,		1,602
Union township,		1,913
Washington borough,		4,292
First ward,	1,107	
Second ward,	1,131	
Third ward,	1,132	
Fourth ward,	922	
West Alexander borough,		395
West Bethlehem township,		2,123
West Brownsville borough,		570
West Finley township,		1,524
West Middletown borough,		312
West Pike Run township, including part of village of Centreville,		885
e Centreville village, (part of,) (see East Bethlehem township,)	61	
NOTE.—Centreville village, in East Bethlehem and West Pike Run townships,	150	
Total,		55,417

Wayne County.

Berlin township,		1,198
Bethany borough,		181
Buckingham township,		1,265
Canaan township,		576
Cherry Ridge township,		881
Clinton township,		1,009
Damascus township,		2,871
Dreher township,		996
Dyberry township, including village of Tanners Fall,		1,020
e Tanners Fall village,	145	
Honesdale borough,		2,620
Lake township,		1,234
Lebanon township,		590
Manchester township,		1,393
Mount Pleasant township, including the following villages,		1,880
e Mount Pleasant village,	139	
e White's Valley village,	82	
Oregon township,		641
Palmyra township, including village of Hawley,		2,727
e Hawley village,	1,882	

Panpack township,		628
Preston township,		1,592
Prompton borough,		310
Salem township, including village of Hollisterville,		1,635
e Hollisterville village,	171	
Scott township, including village of Sherman,		1,097
e Sherman village,	196	
South Canaan township,		1,175
Starrucca borough, formerly called "Wayne,"		535
Sterling township,		705
Texas township,		4,250
Waymart borough,		503
Total,		33,512

Westmoreland County.

Adamsburg borough,		199
Allegheny township,		2,050
Bell township, including the following villages,		1,064
e Grimtown village,	128	
e Perryton village,	29	
e Salina village,	172	
Bolivar borough,		378
Cook township,		1,256
Derry township, including the following villages,		6,964
e Derry Station village,	777	
e Millwood village,	150	
e St. Clair City village,	221	
Donegal borough,		183
Donegal township,		1,242
East Huntingdon township, including village of Reagan Town,		4,404
e Reagan Town village,	33	
Fairfield township, including the following villages,		1,612
e Fairfield village,	119	
e Lockport village,	105	
Franklin township, including village of Murraysville,		1,704
e Murraysville village,	81	
Greensburgh borough,		2,500
Hempfield township, including the following villages,		6,286
e East Greensburg village,	53	
e Grapeville village,	92	
e Paradise village,	110	
e Stanton village,	118	
Irwin borough,		1,444
Latrobe borough,		1,813
Ligonier borough,		634
Ligonier township,		2,646
Livermore borough,		164
Lower Burrell township,		940
Loyalhanna township,		848
Ludwig borough,		603
Madison borough,		190
Mount Pleasant borough,		1,197
Mount Pleasant township, including the following villages,		4,224

e Bridgeport village,	635	
e Bunker Hill village,	327	
e Spring Garden village,	153	
e Texas village,	410	
New Alexandria borough,		335
New Florence borough,		532
North Bellevernon borough,		208
North Huntingdon township, including the following villages,		6,341
e Circleville village,	149	
e Hahnstown village,	432	
e Jacksonville village,	132	
e Kellytown village,	99	
e Paintertown village,	299	
e Shafton village,	343	
e South Side village,	484	
e Stewartsville village,	44	
e Wardentown village,	359	
e Westmoreland City village,	527	
Parnassus borough,		520
Penn borough,		604
Penn township, including village of Harrison City,		2,809
e Harrison City village,	247	
Rostraver township, including the following villages,		3,231
e Gibsonton village,	180	
e Webster village,	560	
Salem borough, or New Salem,		460
Salem township,		1,831
Scottdale borough,		1,278
South Huntingdon township,		3,005
St. Clair township,		795
Sewickley township, including village of Suterville,		3,469
e Suterville village,	493	
Unity township, including the following villages,		4,079
e Pleasant Unity village,	298	
e West Latrobe village,	159	
Upper Burrell township,		714
Washington township, including village of Paulton,		1,604
e Paulton village,	90	
West Newton borough,		1,475
Youngstown borough,		294
Total,		78,129

Wyoming County.

Braintrim township,		670
Clinton township, including village of Factoryville,		841
e Factoryville village,	462	
Eaton township,		955
Exeter township,		151
Falls township, including the following villages,		1,126
e Falls village,	107	
e Mills City village,	159	
Forkston township, including village of Forkston,		754
e Forkston village,	93	

Lemon township,		568
Mehoopany township, including village of Mehoopany,		779
e Mehoopany village,	329	
Meshoppen borough,		554
Meshoppen township,		695
Monroe township, including village of Monroe,		1,171
e Monroe village,	136	
Nicholson borough,		586
Nicholson township, including hamlet of Pierceville,		988
e Pierceville hamlet,	36	
North Branch township,		400
North Moreland township, including village of Center Moreland,		892
e Center Moreland village,	108	
Overfield township,		394
Tunkhannock borough,		1,116
Tunkhannock township, including the following villages,		1,354
e German Settlement village,	65	
e La Grange village,	124	
e Little Africa village,	223	
Washington township, including the following villages,		766
e Keiserville village,	61	
e Russell Hill village,	76	
Windham township, including the village of Jenningsville,		838
e Jenningsville village,	165	
Total,		15,598

York County.

Carroll township,		1,083
Chanceford township, including village of Brogueville,		2,994
e Brogueville village,	46	
Codorus township,		2,261
Conewago township, including village of Strinestown,		1,495
e Strinestown village,	141	
Dallastown borough,		482
Delta borough,		269
Dillsburg borough,		455
Dover borough,		415
Dover township, including the following villages,		2,378
e Davidsburg village,	86	
e Mt. Royal village,	46	
e Newport village,	35	
e Stattown village,	69	
e Weiglestown village,	79	
East Prospect borough,		250
Fairview township, including town of New Market,		2,148
e New Market town,	287	
Fawn township,		1,685
Franklintown borough,		234
Franklin township,		952
Glen Rock borough,		651
Goldsboro' borough,		378
Hanover borough,		2,317
Heidelberg township,		916

Hellam township,		1,963
Hopewell township,		3,773
Jackson township, including following villages,		1,836
e Nashville village,	54	
e Spring Grove village,	208	
Jefferson borough,		320
Lewisberry borough,		283
Logansville borough,		312
Lower Chanceford township,		2,471
Lower Windsor township,		2,538
Manchester borough,		430
Manchester township, including the following villages,		2,636
e Emigsville village,	94	
e Mt. Wolf village,	148	
e New Holland village,	151	
Manheim township,		1,293
Monaghan township, including village of Siddonsburg,		1,055
e Siddonsburg village,	155	
Newberry township, including the following villages,		2,224
e Newberry village,	165	
e Yocumtown village,	132	
New Freedom borough,		324
New Salem borough,		224
North Codorus township,		2,550
Paradise township,		1,372
Peach Bottom township, including the following villages,		2,130
e Bryansville village,	45	
e Coulsontown village,	67	
e West Bangor village,	197	
Penn township,		1,962
Railroad borough,		220
Red Lion borough,		241
Shrewsbury borough,		565
Shrewsbury township,		2,087
Springfield township,		1,854
Spring Garden township, including the following villages,		4,110
e Frystown village,	970	
e Heatherville village,	218	
e Pleasantville village,	246	
e Spanglersville village,	98	
Stewartstown borough,		303
Warrington township, including the following villages,		1,825
e Rossville village,	74	
e Wellsville village,	121	
Washington township,		1,457
West Manchester township, including the following villages,		2,476
e Bottstown village,	308	
e Smyerstown village,	797	
West Manheim township,		1,194
Windsor township,		2,154
Winterstown borough,		199
Wrightsville borough,		1,776
York borough,		13,940
First ward,	1,674	
Second ward,	1,171	
Third ward,	1,180	
Fourth ward,	1,653	

Fifth ward,	1,673	
Sixth ward,	2,723	
Seventh ward,	1,647	
Eighth ward,	920	
Ninth ward,	1,299	
York township,		2,379
Total,		87,839

NOTE.—The enumeration of 1880 is classified as follows, viz: Males, 2,136,635; females, 2,146,151; native, 3,695,253; foreign, 587,533; white, 4,197,106; colored, 85,860; total, 4,282,786.

TABLE *showing for the several States and Territories of the United States, the number of persons, the area in square miles, the number of families, the number of dwellings, the number of persons, of families, and of dwellings to the square mile, the number of acres to a person and to a family, and the number of persons to a dwelling and to a family, as shown at the Census of 1880.*

STATES AND TERRITORIES.	Persons.	*Areas - square miles.	Families.	Dwellings.	Persons to a square mile.	Families to a square mile.	Dwellings to a square mile.	Acres to a person.	Acres to a family.	Persons to a dwelling.	Persons to a family.
The United States,	50,155,783	2,900,170	9,945,916	8,955,812	17.29	3.43	3.02	37.01	186.62	5.60	5.04
Alabama,	1,262,505	51,540	248,961	240,227	24.50	4.83	4.66	26.13	132.49	5.26	5.07
Arizona,	40 440	112,920	9,536	9,033	0 36	0.08	0 08	1,787 06	7,578 52	4 48	4.24
Arkansas,	802 525	53 045	154 272	149 377	15.13	2.91	2 82	42.30	220 06	5.37	5 20
California,	864,694	155 980	177,508	161,037	5 54	1.14	1.03	115 45	562.38	5.37	4.87
Colerado,	194,327	103,645	41,260	39,018	1.87	0.40	0.38	341.35	1,607.68	4 98	4.71
Connecticut,	622 700	4.845	136.885	108,458	128 52	28.25	22 39	4.98	22.65	5.74	4.55
Dakota,	135.177	147,700	31 202	29 324	0.92	0.21	0.20	699.29	3,029.55	4.61	4.33
Delaware,	146 608	1,960	28 253	27,215	74 80	14 41	13 89	8.56	44.40	5.39	5.19
District of Columbia,	177.624	60	34 896	28 687	2,960.40	581.60	478.12	0.22	1.10	6.19	5.09
Florida,	269,493	54,240	54,691	52,868	4.97	1.01	0.97	128.81	634.73	5.10	4.93
Georgia,	1,542,180	58,980	303.060	289.474	26.15	5.14	4.91	24 48	124.55	5.33	5.09
Idaho,	32 610	84 290	7.774	7,700	0.39	0.09	0.09	1,654.27	6,939 23	4.24	4.19
Illinois,	3,077,871	56,000	591,934	538.221	54.96	10.57	9.61	11.64	60.55	5.72	5.20
Indiana,	1,978 301	35.910	391.203	375,225	55.09	10.89	10.45	11.62	58.75	5.27	5.06
Iowa,	1,624,615	55,475	310,894	301,507	29.29	5.60	5.44	21.85	114.20	5 39	5.23
Kansas,	996 096	81 700	197,679	189,432	12.19	2.42	2 32	52.49	264 51	5.26	5 04
Kentucky,	1,648,690	40,000	302 631	286 600	41 22	7 57	7.17	15 53	84.59	5.75	5.45
Louisiana,	939.946	45 420	192.833	174 867	20 69	4 25	3 85	30.93	150.75	5.38	4 87
Maine,	648.936	29.895	141 843	124 959	21 71	4.74	4 18	29.48	134.89	5.19	5 58
Maryland,	934,943	9,860	175,318	155,070	94.82	17.73	15.73	6.75	35 99	6.03	5.33
Massachusetts,	1,783 085	8,040	379.710	281 188	221.78	47 23	34 97	2.89	13 55	6 34	4 70
Michigan,	1,636,937	57,430	336.973	321,514	28.50	5.87	5.60	22.45	109.07	5.09	4.86
Minnesota,	780,773	79,205	143,374	136,458	9.86	1.81	1.72	64.92	353 56	5.72	5.45

POPULATION, &c.—Continued.

STATES AND TERRITORIES,	Persons.	*Area—square miles.	Families.	Dwellings.	Persons to a square mile.	Families to a square mile.	Dwellings to a square mile.	Acres to a person.	Acres to a family.	Persons to a dwelling.	Persons to a family.
Mississippi,	1,131,597	46,340	215,055	208,297	24.42	4 64	4.49	26.21	137.91	5.43	5.26
Missouri,	2,168,380	68,735	403,186	369,180	31.55	5.87	5.37	20.29	109.11	5.87	5.38
Montana,	39,159	145.310	9,931	9,205	0.27	0.07	0.06	2,374.89	9,364.45	4.25	3.94
Nebraska,	452,402	76,185	89,135	85,848	5.94	1.17	1.13	107.78	547.02	5 27	5.08
Nevada,	62,266	109,740	15,158	14 557	0.57	0.14	0.13	1,127.96	4,633.43	4.28	4.11
New Hampshire,	346,991	9,005	60,286	68,381	38.53	8.92	7.59	16 61	71.78	5.07	4.32
New Jersey,	1,131,116	7,455	232,309	190,403	151.73	31.16	25.54	4.22	20.54	5.94	4 87
New Mexico,	119,565	122,460	28,255	26,311	0.98	0.23	0.21	655.50	2,773.82	4.54	4.23
New York,	5,082 871	47,620	1,078,905	772,512	106.74	22.66	16.22	6.00	28.25	6.58	4.71
North Carolina,	1,399.750	48,580	270,994	264,305	28.81	5.58	5.44	22.21	114.73	5.30	5.17
Ohio,	3,198,062	40,760	641,907	586,664	78.46	15.75	14.39	8.16	40.64	5.45	4.98
Oregon,	174,768	94,560	33,468	32,374	1.85	0.35	0.34	346.28	1,808.25	5.40	5.22
Pennsylvania,	4,282,891	44,985	840,452	776,124	95.21	18.68	17.25	6.72	34.26	5.52	5.10
Rhode Island,	276,531	1,085	60,259	41,388	254.87	55 54	38.15	2.51	11.52	6.68	4.59
South Carolina,	995,577	30,170	202,062	191,914	33.00	6.70	6.36	19.39	95.56	5.19	4.93
Tennessee,	1,542,359	41.750	286,539	276,734	36.94	6.86	6.63	17.32	93.25	5.57	5.38
Texas,	1,591,749	262,290	297,259	287,562	6.07	1.13	1.10	105.46	564.71	5.54	5.35
Utah,	143,963	82,190	28,373	26,710	1.75	0.35	0.32	365.38	1,853.93	5.39	5 07
Vermont,	332,286	9,135	73,092	66,769	36.38	8.00	7.31	17.59	79.99	4.98	4.55
Virginia,	1,512,565	40,125	282,355	265,611	37.70	7.04	6.62	16.98	90.95	5.69	5.36
Washington,	75,116	66 880	16,380	15,512	1.12	0.24	0.23	569.83	2,613.14	4.84	4.59
West Virginia,	618,457	24,645	111,732	108,349	25.09	4.53	4.40	25 50	141.17	5.71	5.54
Wisconsin,	1,315,497	54 450	251,530	239,361	24.16	4.62	4.40	26.49	138.54	5.50	5.23
Wyoming,	20,789	97,575	4,604	4,282	0.21	0.05	0.04	3,003.90	13,563 86	4.85	4.52

* Land surface only. The total given for the United States is exclusive of the Indian Territory and tracts of unorganized territory, aggregating 69,830 square miles.

STATISTICS OF MANUFACTURES.

The following statement of the manufacturing industries of twenty of the leading cities of the United States is given by the Census Bureau, showing the number of manufacturing establishments in these cities, the number of persons employed, the amount of capital invested, and the value of the annual products in the shape of manufactured goods:

CITY.	Manufactories.	Number of employés.	Capital.	Annual product.
Baltimore, Maryland,	3,596	55,520	$35,760,108	$75,621,388
Boston, Massachusetts,	3,521	56,813	42,750,134	123,366,137
Brooklyn, New York,	5,089	45,226	56,621,399	169,757,590
Buffalo, New York,	1,137	16,838	24,188,512	40,003,205
Chicago, Illinois,	3,479	77,601	64,177,345	241,045,607
Cincinnati, Ohio,	3,231	52,184	43,278,732	94,869,105
Cleveland, Ohio,	1,033	21,499	18,134,789	47,352,208
Detroit, Michigan,	875	15,062	14,202,159	28,303,580
Jersey City, New Jersey,	555	10,688	11,329,915	59,581,141
Louisville, Kentucky,	1,066	16,569	19,583,013	32,381,733
Milwaukee, Wisconsin,	821	19,620	13,811,405	38,955,138
Newark, New Jersey,	1,299	29,232	23,919,115	66,234,525
New Orleans, Louisiana,	906	9,439	8,401,390	18,341,006
New York city,	11,162	217,977	164,917,856	448,209,248
Philadelphia,	8,377	173,862	170,495,191	304,591,725
Pittsburgh,	1,071	36,465	50,976,902	74,241,889
Providence, Rhode Island,	1,186	21,336	23,573,932	39,596,653
San Francisco,	2,860	26,062	29,417,247	71,613,385
St. Louis, Missouri,	2,886	39,724	45,385,785	104,383,537
Washington, District of Columbia,	961	7,116	5,381,226	11,641,185

SCHOOL STATISTICS.

TABULAR STATEMENT OF COUNTIES for the School Year ending June 6, 1881.

COUNTIES.	SCHOOLS.		TEACHERS.				SCHOLARS.					TAX AND RATE PER CENT.		
	Whole number.	Average number of months taught.	Number of males.	Number of females.	Average salary of males per month.	Average salary of females per month.	Number of males.	Number of females.	Average number attending school.	Average per cent. of attendance.	Cost per month.	Number of mills levied for school purposes.	Number of mills levied for building purposes.	Total amount of tax levied for school and building purposes.
1. Adams,	168	5.33	109	61	$27 90	$24 19	3,945	3,507	5,095	78	$0 66	1 85	1.12	$35,092 40
2 Allegheny,	1,113	8 85	220	906	48 88	36 31	29,554	29,467	40,041	77	79	2.46	2 01	718.666 78
3. Armstrong,	272	5.36	178	99	31 87	25 56	6,636	6 040	8,752	80	65	4 40	3	49,706 15
4. Beaver,	211	6.15	98	118	40 53	30 16	4,768	4,483	6 628	81	89	6.12	4 37	61,404 28
5. Bedford,	237	5.11	206½	41	27 71	23 00	5,009	4,287	5 903	78	71	3.82	3 30	36 413 37
6. Berks,	589	6.35	381	217	29 78	26 60	14 217	12 061	18,967	84	71	1.62	1 23	144 235 85
7. Blair,	209	6 70	138	72	36 68	33 54	5.552	5 354	7.499	81	77	7.10	3 66	71 169 29
8. Bradford,	414	6.47	206	437	28 51	17 83	7.556	6.781	9,156	79	63	6 76	4 05	61,612 84
9. Bucks,	294	7.57	156	140	35 73	32 00	7,738	6 545	8 006	79	76	4 30	2.18	96 356 17
10. Butler,	260	5 80	169	168	31 20	26 31	6,832	6 162	8.473	79	66	4.42	3.29	55 690 90
11. Cambria,	232⅞	5.79	122½	126	32 35	27 78	5,221	4,807	6.329	77	75	9.65	5.17	65,783 89
12. Cameron,	37	6 10	11	35	44 34	30 12	605	588	866	80	1 29	9 50	5 83	6,948 73
13. Carbon,	146	7.08	85	60	41 51	27 93	3,170	3,932	5.103	76	73	10.30	6.33	52,512 58
14. Centre,	226	5.19	164	66	29 13	26 19	4,171	4,358	6,505	76	75	3 87	3	39 916 60
15. Chester,	364	8.07	83	327	37 34	33 53	9,132	8,430	10.171	79	85	2.39	1.11	143,407 96
16. Clarion,	230	5.43	147	130	30 52	24 28	5,251	4,739	6,566	82	64	7.83	6.13	46,322 52
17. Clearfield,	242	5.32	128	137	34 93	28 33	5,048	4 711	6 483	78	82	5 58	3 71	48 641 12
18. Clinton,	148	5.37	84	72	31 20	26 62	3,130	3.042	4,106	74	82	7.39	3 14	28,661 27
19. Columbia,	190	6 44	126	91	28 86	23 42	4,457	3,964	5,293	72	67	5 75	3.44	43,847 14
20. Crawford,	461	6.62	182	498	26 73	19 26	8 286	8 026	11 693	84	66	3 49	2 55	101,717 12
21. Cumberland,	237	6.65	155	84	34 33	29 86	5,187	4 903	7,153	82	86	4	2 27	66 488 12
22. Dauphin,	324½	7	225	120	36 72	28 72	8 767	8,060	11 478	76	74	4 47	3	128,144 94
23. Delaware,	181	9 35	22	164	45 06	39 39	4.822	4.684	5 452	81	96	2.85	1.30	100.962 17
24. Elk,	76	6.78	29	67	42 36	30 07	1,384	1,169	1,750	81	1 21	6 81	3 50	20,947 27
25. Erie,	424	7.60	147	447	32 58	21 01	8,126	7,340	9,983	82	73	2 76	1 32	125,425 89
26. Fayette,	263	5.05	168	99	36 52	31 30	6,793	5,850	7,752	77	71	3.68	2.77	66,004 17
27. Forest,	48⅝	6 30	14	37	25 12	25 57	607	633	754	82	1 27	6.70	. .	7,681 72

28. Franklin,	278	5.95	194	87	33 79	29 36	6,482	5,601	8,019	78	80	3 22	1.08	67,369 71
29. Fulton,	72	5	52	22	20 26	19 93	1.474	1.298	1,714	79	55	5 66	8	6 745 18
30. Greene,	187⅓	5 12	144	48	28 02	26 44	3,840	3 107	5,132	80	77	3 54	1.87	32,092 59
31. Huntingdon,	231	5.37	179	56	27 82	24 19	4 754	4 449	5,843	77	74	6 11	4 59	46,628 08
32. Indiana,	251	5.30	165	99	31 98	27 57	5 652	5,266	7,321	80	71	4 05	2 65	49,817 55
33. Jefferson,	172	5.25	111	87	23 62	23 67	4 109	3 550	5 579	79	69	9 23	6.73	32.816 86
34. Juniata,	105	5.42	81	27	27 50	23 67	2,510	2,427	3 646	82	63	6 11	3 87	21,764 79
35. Lackawanna,	268	8.66	78	323	38 56	23 43	8.286	9,590	11,910	75	70	8 37	4	140,374 48
36. Lancaster,	581	7	309	286	40 73	33 04	15 415	13 898	20,034	83	86	2	1.21	200,092 26
37. Lawrence,	174	6.53	107	128	30 61	27 37	4 053	3,770	5 522	83	75	2.61	1 26	51.384 81
38. Lebanon,	205	6 07	162	45	31 03	27 53	4.580	4,033	6,222	82	78	3.62	1.75	53 232 83
39. Lehigh,	305	6 45	220	87	37 34	27 18	7,984	6,475	10,263	85	73	2 41	1.50	111,518 53
40. Luzerne,	486	8.02	238	313	41 41	28 71	14 096	14,612	17,844	77	67	8 92	5.64	205 008 42
41. Lycoming,	315	5.96	180	147	31 50	26 10	6,772	6 292	8 928	84	89	3.58	2 52	82 854 46
42. McKean,	149	6.64	35	170	43 00	25 45	3 138	2,965	3,903	73	1 06	7.80	5 58	84 717 80
43. Mercer,	312	6 80	182	307	30 61	20 93	7 183	6,711	9,821	83	64	2.94	1.91	82,212 82
44. Mifflin,	109	5.87	71	43	33 36	27 55	2.445	2 277	3 342	84	76	5.71	1 75	25,177 77
45. Monroe,	133	5.27	117	18	23 95	20 23	2,562	2,186	3 153	74	65	8.05	5 25	17 210 14
46. Montgomery,	361	7.89	190	173	39 81	34 59	9,717	8.831	11.834	77	74	1,98	1.07	164.844 28
47. Montour,	75	6.27	40	39	26 95	23 67	1.817	1,712	2,154	67	74	4.83	4 33	17,820 10
48. Northampton,	307⅛	7.13	247	70	34 25	26 68	8 041	7.134	10,465	80	70	1.38	.86	105,728 52
49. Northumberland,	254	6 28	169	91	34 58	27 44	6 338	6 242	7,550	73	67	5,55	4 22	66,604 91
50. Perry,	181	5 21	144	44	27 37	25 57	3 941	3,474	5 014	80	70	4.40	3.75	31,049 44
51. Pike,	62	6 23	26	43	23 51	20 27	1,119	1.038	1 382	72	84	8.81	4	8 979 27
52. Potter,	139	6	59	177	24 41	17 53	1,782	1,707	2 135	77	95	11 70	6 62	19,360 21
53. Schuylkill,	512	8 06	288	258	42 48	30 32	16,241	15.876	19 201	77	70	5.33	3 17	234 817 45
54. Snyder,	112	5.08	99	13	23 55	22 64	2 838	2 168	3,487	75	67	3 82	4.37	20,663 66
55. Somerset,	235½	5 08	202	33	27 82	23 02	4,694	3 979	5 912	77	72	4.65	3 40	37,060 98
56. Sullivan,	66	5.27	31	58	23 37	18 84	1.014	968	1,339	73	79	9 18	4 50	7,850 88
57. Susquehanna,	303	6.41	121	325	27 65	17 20	5 035	4.433	6 384	79	66	8.06	3.58	40 914 33
58. Tioga,	302	6.57	127	336	31 11	20 50	5,666	5,350	6,829	78	66	6 39	4.16	56,505 91
59. Union,	88	5.95	75	33	29 42	25 64	2,112	1,919	2,657	77	73	3 08	4.75	18,646 32
60. Venango,	264	6.67	136	255	38 12	26 43	5.928	5 466	7 720	81	81	4.96	2 39	99,111 90
61. Warren,	198	6.30	56	215	43 17	24 04	3.390	3 210	4 539	81	90	3.55	1.90	42,091 96
62. Washington,	312⅛	5.83	151	168	35 18	31 74	6,479	6 052	8,488	80	93	2 23	1 28	85,449 09
63. Wayne,	219	6 37	86	182	27 10	18 39	4 133	3,861	4 927	77	65	4.07	2.71	33,857 60
64. Westmoreland,	390½	5 85	277	121	36 28	31 86	9 654	8 704	12 389	80	77	3 08	2 15	93 675 26
65. Wyoming,	112	6.63	70	120	20 81	14 30	2 130	1.842	2 639	77	53	3.26	3 66	16.432 65
66. York,	435½	5 37	310	129	29 23	26 89	11.415	9,709	13 664	76	64	1.70	1 35	97,465 61
	16 760⅓	6 28	9,282	9 995	$32 64	$26 04	396.487	365,985	504,912	78	$0 75	5.08	3.21	$5 031 779 70
Philadelphia,	2 075	10	77	1 998	156 75	43 95	83,975	85 302	94,145	56	77			1 433,782 85
	18,835⅓	6 68	9,359	11,993	$33 66	$29 03	480,462	451,287	599,057	76	$0 74	5.08	3 21	$6 465 562 55

TABULAR STATEMENT OF COUNTIES—Continued.

COUNTIES.	RECEIPTS.			EXPENDITURES.				RESOURCES AND LIABILITIES.	
	State appropriation.	From taxes and all other sources, except State appropriation.	Total receipts.	Cost of school-houses, purchasing, building, renting, &c.	Teachers' wages.	Fuel, contingencies, fees of collectors, and all other expenses.	Total expenditures.	Resources.	Liabilities.
1. Adams,	$8 892 08	$36,050 82	$44,942 90	$5,208 82	$23,501 00	$9 395 99	$38,105 31	$11,588 90	$1 500 00
2. Allegheny,	68 001 35	1,046,715 34	1,114,716 69	114 722 83	500,954 85	309,778 72	925,456 40	38,914 22	1,012,996 29
3 Armstrong,	12 505 39	59,518 40	72,023 79	7 315 31	41 245 54	14,464 33	63 025 18	12 760 45	19 415 97
4. Beaver,	10,676 43	93,344 59	104 021 02	16,662 54	43 265 39	33,181 13	93 109 06	10 429 28	38 843 41
5. Bedford,	9,668 78	43,657 69	53 326 47	7 025 57	31 397 51	8 404 36	46,827 44	7 217 10	2 420 86
6. Berks,	41,533 66	196 352 65	237,886 31	31,572 16	111,413 07	41 303 20	184,288 43	11,852 04	48 479 74
7. Blair,	10,435 29	97,035 55	107,470 84	26,210 19	49,878 66	22,393 59	98 482 44	8,496 44	85 602 48
8. Bradford,	13,697 10	84,416 59	98 113 69	10,842 74	53 139 58	23 413 22	87 395 54	11,390 71	13 643 42
9. Bucks,	18,666 07	130 673 48	149,339 55	31 522 22	74 127 19	27,896 12	133 545 53	17,203 11	20 814 54
10. Butler,	14,001 76	68,243 80	82,245 56	13 894 82	42,783 61	15,977 75	72,656 18	19,357 00	7 380 12
11. Cambria,	7,479 28	104,965 33	112 444 61	23,288 89	43 665 01	18,689 98	85,643 88	12 225 30	14,989 24
12. Cameron,	1,382 28	14 270 93	15,653 21	2,044 25	7,894 38	2 027 83	11,966 46	6 896 56	14 89
13. Carbon,	7,748 46	55 052 42	62,800 88	4 994 90	35,468 37	17 545 37	58,008 64	6 185 73	40,164 86
14. Centre,	8,656 71	51 996 11	60 652 82	6,688 56	33 267 19	13,786 89	53,742 64	16,371 71	25 765 47
15. Chester,	22 677 51	175,056 43	197,733 94	27 307 70	103,935 77	46 122 68	177 366 15	16,358 56	74 542 04
16. Clarion,	9 269 09	54,148 86	63 417 95	9 653 19	32,754 03	12,658 15	54,465 37	11,969 02	1,588 88
17. Clearfield,	7,917 31	86 895 12	94,812 43	16,616 34	38,957 64	33,448 73	89,022 71	22,976 79	12,611 61
18. Clinton,	6 770 09	42 103 03	48 873 12	3 813 11	28 280 08	13 807 30	45,900 49	27,066 39	2 003 27
19. Columbia,	8 332 98	53 637 19	61 970 17	10 654 79	32,855 65	12,116 65	55,627 09	7 740 84	3 470 21
20. Crawford,	19,883 74	168 168 22	188 051 96	29 299 33	74,834 73	68 229 40	172,363 46	14 706 26	99 460 56
21. Cumberland,	12,949 32	83,459 86	96 409 18	17,462 47	52,536 91	16,905 55	86 904 63	10,482 05	8,769 46
22. Dauphin,	19,801 18	149,919 49	169 720 67	32 540 58	97 843 23	30,274 95	160,658 76	8 620 90	110,302 55
23. Delaware,	15,024 38	114 206 97	129 231 35	11,218 90	68 552 98	37 640 65	117,412 53	8 226 54	57,923 56
24. Elk,	2 088 15	34 206 30	36,294 45	5 065 72	16,808 14	4 604 35	26,478 21	17 964 70	
25. Erie,	27,838 29	147 486 99	175,325 28	21,529 20	89 134 48	37 418 33	148 082 01	47,856 99	2 814 08
26. Fayette,	12 628 30	77 189 88	89 818 18	12 113 43	48,251 28	17,442 20	77,806 91	14 388 10	38 907 11
27. Forest,	948 12	14,796 56	15 744 68	1,159 03	8,046 00	2 394 19	11,599 22	5 621 17	47 99
28. Franklin,	12,311 63	73 269 78	85,581 41	8 770 63	52 991 31	16 905 97	78,667 91	7 393 46	24 096 92
29. Fulton,	2 394 44	8 594 80	10,989 24	314 52	6 970 00	1,734 92	9,019 44	2 395 33	92 99
30. Greene,	7,182 71	39 913 46	47,096 17	8,567 46	25,277 03	7 751 88	41 596 37	8 246 94	1 543 14
31. Huntingdon,	7,290 89	51 334 56	58 625 45	12,088 61	33 979 93	14,719 84	60 788 38	5 847 38	25,158 57
32. Indiana,	10,089 16	56 957 79	67 046 95	6 576 11	38,099 16	13,578 60	58,253 87	22 346 97	2,580 86
33. Jefferson,	5,496 92	39,197 61	44,694 53	7 264 55	24,394 33	8,781 73	40,443 61	5 738 83	18,362 10
34. Juniata,	5,098 29	25,570 57	30,668 86	7 205 03	13 907 54	6,721 92	27,834 49	3 633 42	979 42

35. Lackawanna,	17,759 85	143,611 08	161 370 93	29,317 46	104,401 21	30,007 01	163,725 68	18 501 72	1,711 56
36 Lancaster,	48,947 07	268 474 98	317 422 05	64.760 43	158.780 43	66,612 72	290,189 61	21 318 93	70,760 12
37. Lawrenee,	6 990 49	73,610 26	80,630 75	21.610 78	34 790 70	15,154 09	71.555 57	5.441 52	11,408 76
38. Lebanon,	9 115 91	72 332 57	81 448 48	13.867 22	38,891 38	18,641 48	71,400 08	4,972 52	26,971 80
39. Lehigh,	17 862 97	142 516 61	160.379 58	19,913 05	62.927 00	64.486 23	147 326 28	10,647 21	39,520 17
40. Luzerne,	34,002 23	259 928 91	293,931 14	43 589 60	149.982 20	53.511 17	247.082 97	38,647 28	22,219 40
41. Lycoming,	16,342 74	101,929 85	118 272 59	13,712 83	62,411 67	36,384 39	112 508 89	26,870 55	18 566 21
42. McKean,	2.846 71	91,059 49	93,906 20	18,931 09	38,320 32	16,608 83	73 860 24	34,666 87	6.343 68
43. Mercer,	13 443 12	112,441 55	125 884 67	18,466 88	60.275 18	24 595 10	103 337 16	27,322 66	11 274 42
44. Mifflin,	6,551 01	25 889 69	32,440 70	2,058 77	18 639 20	8,291 03	28,989 00	5,096 88	18 042 15
45. Monroe,	6.150 01	19 793 19	25 943 26	3,417 53	15 727 33	5,185 18	24,330 04	3,463 74	670 44
46. Montgomery,	25,530 30	188,122 30	213 652 60	32 145 48	108 587 78	47,551 26	188 284 52	27,594 65	92 904 02
47. Montour,	3,805 11	22 225 97	26 031 08	3.767 83	13,420 27	6 703 84	23,891 94	2.100 33	6 703 70
48. Northampton,	24 459 23	129 720 17	154 179 40	16,442 86	77,260 99	31.564 77	125 268 62	8,856 96	114 607 60
49. Northumberl nd,	14 750 40	88.677 95	103.428 35	25,933 17	47.295 59	23,468 06	96 696 82	10,245 08	35,376 91
50 Perry,	6 665 55	36 608 39	43,273 94	6,634 49	24,733 80	8.119 38	39,537 67	4,445 47	11,436 50
51. Pike,	2,883 17	11,665 60	14 548 77	514 47	8,822 20	3 469 75	12 806 42	1.792 69	3,213 78
52. Potter,	3.479 12	29,057 21	32 536 33	3,195 65	16.142 03	6 797 61	26.135 29	15.301 89	530 30
53. Schuylkill,	28 894 73	281,607 77	310.502 50	39 915 74	171.171 22	75,710 58	286,797 54	37,224 48	181,909 59
54. Snyder,	4 011 36	26,707 44	30 718 80	6,197 71	13,135 10	7 575 52	26,908 33	3,888 43	2,227 18
55. Somerset,	6,469 05	43,461 49	49 930 54	5,861 19	28,938 41	8 166 19	42 965 79	8 077 69	5 763 62
56. Sullivan,	1,449 82	11,552 63	12 997 45	2.705 60	6 945 19	1.776 87	11.427 66	2 721 10	224 60
57. Susquehanna,	11.553 41	50,746 16	62 299 57	6,823 67	36,619 05	13 039 32	56 482 04	7,937 08	2.692 20
58. Tioga,	12,091 38	74,933 82	87,025 20	12,564 92	42 599 98	20.714 63	75,879 53	15,230 93	33,268 99
59. Union,	4.124 89	22 349 06	26,473 95	2.342 46	14 650 49	5 312 56	22 305 51	5 201 28	4 119 18
60. Venango,	9.436 78	119 398 16	128.834 94	18.279 41	62,725 15	32.034 76	113 039 32	12,958 07	104 112 46
61. Warren,	6,579 64	57,180 27	63,759 91	8 923 03	32,462 99	12,728 58	54 114 60	8,710 24	5 438 60
62. Washington,	13,338 42	121,244 56	134,582 98	28 655 05	61,757 45	21 261 69	111 674 19	15,886 72	20,526 25
63. Wayne,	8,846 32	44.196 63	53.042 95	4 272 44	29 827 79	12.797 68	46 897 91	7,404 06	2 383 43
64. Westmoreland,	17,567 38	119 914 59	137 481 97	23 463 33	73.423 33	21 302 27	118 188 98	18 408 29	23 647 87
65. Wyoming,	4 338 78	19,911 17	24 249 95	3 397 14	12 219 89	4 965 29	20,582 32	4.267 32	900 92
66. York,	26,200 61	109,814 22	136 014 83	14 546 33	69,872 89	37 767 68	122 186 90	17,953 23	19 983 52
	$865,819 70	$6.499 120 91	$7,364 940 61	$1 067.471 34	$3,678,225 83	$1,703 224 99	$6.448 922 16	$864,185 06	$3 067,746 54
Philadelphia,	185,973 04	1,247,809 81	1,433,782 85	139.539 79	998,790 67	295 452 39	1 433,782 85		
	$1,051 792 74	$7,746 930 72	$8,798,723 46	$1 207,011 13	$4,677,016 50	$1 998 677 38	$7,882,705 01	$864,185 06	$3 067 746 54

LABOR TROUBLES IN PENNSYLVANIA.

The rapid growth of manufacturing industries in Pennsylvania, during the last thirty years, has been so great that those who have not given the matter strict attention can scarcely form an idea of the extent and variety of her interests. Manufacturing, that was formerly monopolized by other sections of the country, has here developed with more new material and varied lines than in any or all the Northern States together. The development of petroleum, and its adaptation by chemists for almost innumerable uses, has given us an element of enterprise possessed by no other section. Our forests furnish us with material for tanning purposes in such quantities that enable us to stand far in advance of New England and the Middle States in the manufacture of leather. Pennsylvania now shares with the Eastern States in the trade in cotton and woolen goods, the factories for their manufacture being distributed from the Schuylkill to the Delaware, the Susquehanna, Allegheny, and the lakes, making goods as high in reputation in the markets of the country as those produced in any other portion of the Union. Our vast mineral resources, with the development of the western and northern bituminous and semi-bituminous coal fields, which rivals, to a great degree, that of the anthracite regions, affords comparatively cheap and abundant facilities for the manufacture of iron and steel, machinery, glass, and other commodities that are fast pushing the State to a position unequaled in the civilized world. This growth, however, has frequently been marred by serious conflicts between employer and employé. They were caused principally by fluctuations in the demand and wages of labor; the enforcement upon the one side or the other of odious regulations, embracing within their scope, the small shop, mine and mill, as well as that of the largest corporations. They have been the means of producing business convulsions of the most serious nature, breeding discord and dissension, and thus, for the time being, at least, creating an unwarranted gulf between capital and labor. In the following pages we attempt to give a brief synopsis of these difficulties with their causes, duration, and results. We do not claim that all "strikes" are here enumerated, as that would be impossible, but we have endeavored to collate as many as limited opportunity would permit, and feel conscious that the most important are given. Their perusal, we hope, will be interesting to both sides, and a lesson upon the folly and futility of "strikes," thus creating an incentive to adopt for all time, some mutual system, whereby "strikes" and "lock-outs" will be forever banished as a relic of the past.

The subject of reducing the hours of labor to ten, for a day's work, was agitated among the journeymen in the building trades, in the Eastern States, as early as 1825, and were about the first outbreaks in the shape of "strikes" and "lock-outs" that took place in this country, and, by degrees, spread among the trades in the large cities, until it became almost a universal demand.

1835. In May, 1835, the workmen in the coal-yards of Philadelphia struck for a reduction of the hours of labor. "They contended that ten hours per day was long enough to work during the summer season." On the 30th, several of the coal-heavers were taken before the mayor, charged with having assaulted persons who refused to enter their combination. The employers offered a compromise to this effect: "The laborers to work from sunrise to sunset, with an intermission of three hours, the workmen to designate the hours for themselves." The loss, in consequence of the strike, to the employers and others was estimated to be no less than $10,000. On June 2d, a number of coal-heavers resumed their places in the various yards. On the afternoon of the 3d instant, several hundred laborers marched in procession through the streets, preceded by a band of music, bearing flags, and also a large white banner, on which was inscribed, "From 6 to 6." They assembled at the State House yard, where they organized, and were addressed by several laboring men. The house carpenters and bricklayers assembled at the same place on the following morning, and enunciated similar doctrines, and also went out on strike, followed by plasterers, hod-carriers, and day laborers. Their conduct, however, was peaceable. The laborers in the employ of the city authorities had their wages raised, without any attempt on their part to coerce their employers into such a measure. The city councils passed the following resolutions June 4: "That the hours of labor of the workingmen under the authorities of the city corporation shall be from six to six during the summer season, allowing one hour for breakfast and one hour for dinner." The building committee of the Eastern Penitentiary, also the commissioners of Southwark followed the example of the city councils, and agreed to allow the workmen the hours. In addition to the reduction of the hours, the board of commissioners of the district of Southwark, owing to the enhanced price of provisions since the year previous, and "the wages now allowed (of 87½ cents per day) being manifestly too scanty to supply all the wants of the laboring men in the employment of the public, agreed "that each laboring man in the public employment shall receive, as a compensation for such day's work, (ten hours,) the sum of one dollar, instead of eighty-seven and a half cents, heretofore allowed under the old rules and regulations."

June 5. The master house-carpenters held a meeting, and after a long and animated discussion it was determined, by a very large majority, that the wishes of the journeymen, with regard to working hours, should be complied with, so that hereafter, so far as house-carpenters are concerned,

a working day will be comprised within the hours of "six and six," with an allowance of one hour for breakfast and one hour for dinner. The master builders also were willing to fix the period of labor at ten hours per day, but some difference of opinion existed with regard to the hour of commencing the day.

June 6. The master bricklayers at a meeting adopted a resolution "agreeing that ten hours shall constitute a day's work for journeymen and laborers, from the 20th of April till the 20th of September, and the time allotted to perform that work shall be between the hours of 6 o'clock, A. M., and 6 o'clock, P. M." Most of the journeymen bricklayers and carpenters returned to work on the 8th, their employers acceding to their terms.

June 8. A meeting of the employés of C. Cornelius & Son, lamp and chandelier manufacturers, was held, and a committee appointed to address the firm on the subject of the ten-hour system. They stated in their address that they thought it prudent to pursue a course somewhat different from that which many of their fellow mechanics had pursued, and thought themselves competent to do what was required of them in ten hours. They hoped that their request would be granted, since so many of the mechanics had adopted the system. To which a reply was made to the effect that the firm had no hesitation in at once saying, "We hereby comply with your request, it being our candid impression that if a man works ten hours of a day it is all sufficient, and more especially in the summer months, and recommend that seven, A. M., be the hour of commencing work, and that all should come and go at the same time; and in order to prevent any misunderstanding, that ten hours being the time agreed upon, they expected that all persons in their employ would adhere to the regulation; that is, that they work neither more nor less than the time appointed."

A meeting of the journeymen tin-plate and sheet-iron workers of Philadelphia was held on the 8th instant, for the purpose of establishing a regular system of labor, and appointed a committee to draft resolutions to the effect "that the present system of labor is odious and unjust, and that the ten-hour system is highly judicious and proper, and well calculated to promote the interest and happiness of ourselves and posterity," to present the same to the employers, and report at an adjourned meeting on the next evening. The committee reported at the time specified to the effect that the employers would grant the request.

The journeymen cordwainers of Philadelphia, numbering about fifteen hundred, were on strike a short time in June, for an advance in their wages, which terminated successfully. The ladies' shoe dealers and manufacturers, at a large meeting held on the 11th of June, in a series of resolutions, conceded that the demands of the journeymen cordwainers of the ladies' branch, were "just and equitable," and felt a "desire to aid and encourage them in their efforts to obtain an adequate compensation for their labor," that the demands of the journeymen were dictated by the enhanced cost of living,

rent, etc.; and knowing that the pittance heretofore earned by them is entirely insufficient for their support, agree to comply with their demands generally, and do all in our power to support and sustain them." A committee of ten was appointed to confer with the journeymen. At an adjourned meeting of the Union Benevolent Society of Journeymen Cordwainers, on the 22d of June, the strike committee reported that upwards of one hundred and forty employers had acceded to their demands.

On the 20th of June, the working women, consisting of tailoresses, seamstresses, binders, folders, milliners, stock-makers, corset-makers, mantua-makers, etc., held an adjourned meeting, with a very large and respectable audience, and formed committees of the various branches represented at the meeting, for the purpose of forming a scale of the prices then allowed; and such advances as were deemed essential to enable those interested to live with some degree of comfort.

The master book-binders, at an adjourned meeting on the 24th instant, "considered the cause of the laboring class of females, as one whose claims were founded on the immutable principles of justice and humanity, and deprecated the course of those, who, for their own gain or private interest, would, by their tyranny and oppression, if possible, drain the last drop of blood, and then, grudgingly give an acknowledgment, much less an equivalent;" and resolved that, "three dollars per week is the least amount of wages those possessed of the practical principles of humanity could offer, that less is unjust, inhuman, and oppressive."

A STATEMENT

Respecting the amount of wages, etc., of the book-folders of Philadelphia, June, 1835.

NAMES OF EMPLOYEES.	Average No. of girls employed.	8 vo.'s per 100 sheets.		12 mo.'s and 18 mo.'s per 18 sheets.		Average No. of hours employed per day.	Average amount of wages per week.	REMARKS.
		F.	S.	F.	S.			
*Desilver, Herse & Lindsey,	30	2c.	2c.	2¼c.	2¼c.	7 to 9	$3 25	*Those so marked, have one or more girls employed in jobbing, who received from $3 50 to $4 per week, working from 8 to 10 hours. †Sunday school work. ‡Pays 3 cents per 100 for stitching pamphlets; 800 a good day's work. §Paid according to quantity of work. ‖Work by the week.
*Kates & Co.,	15	1¾	2	2¼	2½	7 to 9	3 25	
Thomas Clark,	5	1¾	2	2¼	2½	7 to 9	3 25	
Carpenter & Simmons,	15	1¾	2	2¼	2½	7 to 9	3 25	
*R. P. Desilver,	10	2	2	2¼	2½	7 to 9	3 00	
B. Gaskill,	12	1¾	2	2¼	2½	7 to 9	3 25	
†James Boyles,	20		2	2¼	2½	7 to 9	3 50	
‖J. Locken,	5	. . .	. .	. .	. .	7 to 9	3 00	
E. W. Miller,	6	. .	. .	2¼	2	7 to 9	3 25	
*D. Clark,	5	2	2½	2½	2½	7 to 9	3 25	
‖C. Peters,	7	. .	. .	. .	. .	6 to 8	3 00	
J. Snyder,	6	2	2	2½	2½	7 to 9	3 25	
‖J. & R. Edgar,	4	. .	. .	. .	. .	10	3 60	
R. W. Pomeroy,	10	2	2½	2½	2½	8	3 50	
James Crissey,	5	2	2	2½	2½	8	3 00	
George W. Meatz & Son,	9	2	2	2½	2½	7 to 9	4 00	
Carey, Lea & Co.,	4	1½		2½		10	2 50	
‡G. P. Storey,	. .	1¼		2		. . . .	1 to 2	
§L. Clark,	2	2		2½	2			

The saddlers and harness makers of Phildaelphia were on strike during the month of July, for an advance in their wages. Result not known.

The shipwrights, caulkers, riggers, and others connected in ship-building in the Philadelphia navy yard, forwarded a communication to the Secretary of the Navy, in July, in reference to the hours of labor, which set forth that ten hours had been adopted in private ship-yards several months previous, and that it was unjust for the Government to exact more hours for a day s work from employés, than was required by individual firms. They received a prompt response, to the effect that the hours of labor in private ship-yards was perfectly agreeable to the department.

"The manufacturers in and about Philadelphia," says a Philadelphia journal in the latter part of the summer of 1835, "since January, in fact since the panic has subsided, have been doing a very fair business, employing the regular number of hands; paying fair wages and receiving a fair renumeration of interest on capital invested. The country is in a healthy and wholesome condition with a fair prospect of continuing so."

1839. A general strike of the hands employed on the different sections of the railroad between Reading and Hamburg took place on or about June 11, 1839, demanding an increase in their wages. The wages paid was $1 per day, they demanded $1 12½. On one section the demand was conceded and work resumed. Most of the contractors, however, refused. In some cases an increased supply of whiskey was demanded. The allowance of each laborer was one and a half pints per day, dealt out in nine doses, to old and young alike. This custom prevailed to a considerable extent in those days, in some branches of labor, and without doubt the majority of the riots, in which laborers were the participants, was the result of a too free indulgence in whiskey, the appetite for which was not only created, but encouraged by the allowance system.

A public meeting was called January 16, 1839, at Philadelphia, by the "Society for Relief of Industrious Females," to consider some method for improving the condition and elevating the character of industrious females. The following is copy of a report of earnings, etc: "These females make from six to nine shirts or pairs of drawers per week, according to their several capacities, seven and a half being a fair average. The prices vary from eight to fifteen cents per shirt, conceding twelve and a half cents a piece for an average, and seven and a half shirts an average week's work, makes total earnings ninety-four cents, allowing fifty cents a week for lodging, leaves but forty-four cents per week, or six and a fourth cents per day, for food and clothing, fuel, soap, etc., for self and children."

1842. The weavers of Moyamensing and Kensington, Philadelphia, went on strike about the middle of August, 1842, on a question of wages, and in a short time exhibited a disposition to be riotous. Early in September some evinced a willingness to resume work, but through the violent intimidation of the others they were prevented. The strikers

would assemble in large numbers, and then dividing themselves into bodies of from one hundred and fifty to five hundred parade the streets, and forcibly enter the houses of those weavers who expressed a willingness to work for what they could get, and in the manufactories that were at work they cut the chains from the looms and burned them.

A party of hand-loom weavers were frustrated in an attempt to burn down Kempton's mill, at Manayunk, on the night of September 23, through information being given to the sheriff beforehand, who promptly organized the citizens, and, together with the Roxborough volunteers, prepared to resist and capture the assailants. About two o'clock, A. M., a body of about thirty men were seen approaching the mill, who, when they found they had been detected, fired upon those on guard, severely wounding the Manayunk constable, and slightly wounding a number of others. Finding that their plans were discovered, and likely to prove disastrous to them, the weavers returned to the city. The cause of this contemplated outrage was said to be, that the mill in question manufactured goods, such as the hand weavers were in the practice of making. They intended also to effectually stop off the water-power. The mills had to be guarded for some time, fearful of another attempt by the hand-loom weavers to carry out their designs.

On, or about October the 27th, a party of weavers in Kensington went to the house of one of their craft, and with vitrol, cut from his loom, the "chain" that he had taken from a manufacturer under price.

On the evening of November 7, a party of weavers in the district of Kensington, learning that the manufacturers were to hold a meeting at a certain house, threatened the tenant that if he allowed the meeting to take place they would tear his house down. Through personal fear he refused to allow the meeting to take place in his house. Subsequently to this, several hundred of them proceeded to another house, where they spoiled the work, broke several articles of furniture, assaulted and abused the wife, and robbed them of some money.

The weavers of Moyamensing created a disturbance on the same evening. The officers who attempted to arrest some of the parties were repulsed and threatened with violence by the rioters, who collected in mobs in various parts of the district. Several aldermen and officers in attempting to arrest a rioter were assaulted and the prisoner taken from custody.

1843. On the 10th of January a riot occurred among the Moyamensing weavers, in which "chains" were cut from looms and given to boys to drag through the streets, and threats were made to burn a large factory. The sheriff went out towards evening to suppress the disturbance.

The hand-loom weavers at Kensington were equally as bad during the week. The chains and looms of a number of their craft that were obnoxious to them, were destroyed. They also destroyed household furniture, and abused and maltreated the wives and children. On the Germantown Road they went to the house of a weaver, destroyed his chain, with oil of vitrol,

and took out a piece of half woven cloth, which they dragged clear across the street, knocking down his wife, and treading upon his children, and all this in the face of the most positive assurances and offers of proof on the part of the man, that he was not working under the regular price, which was the grievance of which the rioters complained. They cleared out several houses and set fire to one. On the following day the rioters assembled in parties in the vicinities of Fourth and Master and Cadwalader streets, every now and then repeating the outrages of the previous days, defying the police, exhibiting signs of violence, accompanied with many threats. A constable, in attempting to arrest one of the rioters, was severely handled, and had to flee into a cellar to save his life. The assailant was finally overpowered, and in default of bail, was committed to jail. The rioters manifested a determination to rescue the prisoner, and excited a vengeance against the committing magistrate, whose house they menaced with destruction. The sheriff made his appearance in the afternoon, and endeavored to disperse them, but without avail. He assembled the magistrates and made arrangements with them to have the police and a posse of citizens at the town hall in the evening, while he returned to the city for an additional force, which was deemed imperatively necessary, from the serious aspect which things had assumed. About eight o'clock in the evening the sheriff and his deputies returned with between two and three hundred men, composed of police officers and citizens, collected in the city and elsewhere, and moved in solid order to the market house, which the rioters, numbering four or five hundred, had filled. As the posse approached, two muskets were fired in the air from the market house, and before they had gone many steps further, they received a tremendous volley of brickbats, and the rioters rushed out upon them with fiendish yells and shouts, which compelled the posse to flee indiscriminately. A great many were wounded and seriously injured, among whom was the sheriff. Nine of the rioters were arrested and put in the lockups. Three military companies were ordered out during the night, and the rioters dispersed. The military and posse were discharged at noon next day, when the rioters immediately began to reassemble and committed several depredations during the day. Ten of the rioters were examined and committed for trial.

The recusant weavers and their employers held a conference on or about the 13th of January, and amicably adjusted all their difficulties.

A journal of the period, referring to the troubles that existed, says: "God knows, some of the poor fellows had great cause to feel rebellious. Empty stomachs and empty purses are not the best advocates of good order. At the prices paid, some of them, we are told, a man and his wife, with constant and close application sixteen hours per day, could not earn over $2 50 per week.

On or about May 23, 1843, the journeymen brick-makers in the western part of the city of Philadelphia struck for higher wages, and about a hundred or so paraded the streets. In Kensington, they rode an employer on

a rail, and compelled him to sign their list of prices. They assaulted several on their way, besides destroying extensive brick-yards on Gray's Ferry road, burning all the buildings, and destroying all the machinery. The fire companies who came to put out the fires were attacked by the rioters. The mayor and sheriff were applied to, but the former had no jurisdiction, and the latter would not interfere, because the county refused to pay the last posse he turned out.

During eighteen months preceding July 21, 1843, the riots in Philadelphia cost the city $7,194 50, which includes other riots as well as those of labor.

September, 1843, the girls employed in making caps in Philadelphia went on strike for a list of prices higher than they had been receiving. In consequence of the dull times, of which some manufacturers had taken advantage, girls' wages were reduced to about thirty cents per day. A number of the employers immediately agreed to the advance, and took a stand in favor of the girls. An employer stated that the girls could make from four to six shillings a day, (fifty to seventy-five cents,) but the girls stated that they could not make on ordinary work more than thirty-seven cents a day. A large majority of the employers agreed to give the required advance in the course of a few weeks.

On September 3, the master weavers of Philadelphia agreed to give the advance asked by the weavers, but the weavers chose to work for those who first agreed to the advance, which was not relished by some of the most stobborn of the employers, who held a meeting, which broke up in confusion and a row, the more liberal going against the others. The next day several employers advanced a quarter of a cent a yard more than was asked for by the workmen.

Persons employed on the city work, Philadelphia, had their wages increased to one dollar per day in the beginning of October, 1843.

1844. A strike of several weeks' duration of the journeymen ship carpenters of Philadelphia was ended March 19, the employers conceding to their demand for an increase of wages, making the wages $1 75 per day.

The journeymen tailors of Philadelphia, after several spirited meetings, on or about March 26, resolved to strike for an increase of wages. Five employers immediately signed the bill of prices. After several days' strike, the journeymen and master tailors had a meeting, and their demand was complied with April 1.

The journeymen saddlers and furniture makers of Philadelphia went on strike for an advance in their wages in the early part of April. Result unknown. A saddler stated that by working from morning until late at night they could scarcely make eighty-seven and one half cents a day.

November, 1844. In 1825, there were forty looms for the manufacture of carpet in the United States, which, at date, had increased to two thou-

sand. Hand-looms average eight yards a day; power-looms, fifteen to twenty yards a day.

1845. June 1. The hod-carriers of Philadelphia struck for an advance in their wages from $1 to $1 25 per day. Employers who had made contracts acceded to their demands.

In May, 1845, the boilers in the rolilng-mills of Pittsburgh demanded an advance of $1 per ton, (from $5 to $6,) which was refused, whereupon they engaged in a strike, lasting until the latter part of August, when their demands were acceded to, and the price for boiling continued at $6 per ton until January, 1850.

The method of producing wrought iron from pig iron direct was first introduced into the United States by Ed. Nock in the year 1837, and is termed boiling. Previous to that period, and in part for years thereafter, pig metal was refined in a run-out or refining furnace and then puddled into wrought iron. The first boiling furnace was started by Ed. Nock at the mill of Lorenz & Cuddy, Pittsburgh, November 16, 1837. Shortly thereafter the same furnace was started double turn, the opposite turn being worked by a brother of Nock's. Early in January, 1838, a second furnace was put in operation upon the same method, in the same mill, and was in charge of David D. Davis and David Jones, (Dai Tarr.) In 1843 there were five furnaces boiling and three puddling, in the mill of Lorenz & Cuddy.

Bissel & Co., Allegheny City, started one boiling furnace in 1839, which was worked by Thomas Russell. The next boiling furnace was started in Sligo rolling mill in 1840, and worked by John Davis, afterwards manager at Dilworth, Porter & Co. A second furnace was soon started in the same mill and worked by William James.

In 1841 William James started a boiling furnace for Spang & Co., at Pine Creek, working to a small hammer, with David Beynon as hammerman. In the fall of 1842 William James removed to Shoenberger's mill and started the first boiling furnace there, and in the fall of 1843 an additional boiling furnace was built, and David D. Davis, from Lorenz & Cuddy, went to work the same. From this time forward boiling superceded puddling and was gradually introduced into all the mills throughout the west. The prices paid per ton during these periods were as follows:

YEAR.	Boiling.	Puddling.	Hammerman.
1837,	$7 00	$4 25	$1 25
1838,	7 00	4 25	1 25
1839,	6 50	4 00	. . . . .
1840,	6 00	3 75	. . . . .
1841,	5 50	3 75	. . . . .
1842,	5 00	3 50	1 00

A notice of a reduction in the price of boiling to $5 per ton was given in February, 1842, which caused a strike that lasted until the 9th of July, when the boilers resumed work at the reduction, which price prevailed until the aforementioned strike in 1845.

On September 13, 1845, the operatives of the cotton mills in Allegheny City petitioned the factory-owners for the "ten-hour system." Five factory firms replied on the 15th, declining to comply, stating that it was impracticable so long as the twelve-hour system prevailed in other places. Thereupon the operatives in the five mills "turned out." The strike continued, amid great excitement and some riotous demonstrations in the vicinity of the mills, until Monday, October 20, when work was resumed in the mills, with the understanding that the agitation of the ten-hour system should continue without interference, and the operators were to accede to the demand when the same was done in other parts of the country.

1846. The hand-loom weavers of Moyamensing, Philadelphia, numbering some twelve hundred, went out on strike for an increase of a half a cent a yard upon all fabrics, about the first week in February. But after a month's idleness, during which time some of the old scenes of chain cutting and loom breaking were enacted, they agreed to go to work (for the present) at the old prices.

1847. The journeymen tailors of Philadelphia, went on strike about the middle of June, for an advance in prices. Their different associations numbered about twelve hundred, and did not resume work until the beginning of October, when the strike terminated successfully to the journeymen.

During 1847, strikes were frequent among the mechanics employed in the various trades in the city of Philadelphia, who, in consequence of the high price of provisions, were compelled by necessity to demand higher wages. In the early part of the year flour was sold in the city as high as fourteen dollars, but declined before the end of July to five dollars per barrel.

1848. The following law, limiting the hours of labor, was passed by the Legislature, and approved March 28, 1848: "That labor performed during a period of ten hours on any secular day, in all cotton, woolen, silk, paper, bagging, and flax factories shall be considered a legal day's labor; and that hereafter, no minor or adult engaged in any such factories shall be holden or required to work more than ten hours on any secular day, or sixty hours in any secular week; and after the 4th of July, of the present year, no minor shall be admitted as a worker under the age of twelve years, in any cotton, woolen, etc., factory within this Commonwealth, that if any owner of or employer in any such factories aforesaid, shall employ any such minor, he shall be adjudged to pay a penalty of fifty dollars, one half to the person so employed and the other half to the Commonwealth, to be recovered in like manner as fines of like amount are now recoverable by law: *Provided*, That nothing contained in this act shall be construed to prevent minors above the age of fourteen years from

being employed more than ten hours in any day, if the same be done by special contract with their parents or guardians."

After the passage of the above law, the operatives in the factories in and about Philadelphia continued to work according to their usual custom, (from five, A. M., until six and a half, P. M.,) until July 4, agitating the question in the meantime by frequent meetings, resulting in a resolve to refuse to work more than "ten hours," after July 4. All the mills at Fairmount went to work on the 6th of July on the ten hour system.

The proprietors of the textile manufacturing establishments at Manayunk, and in Delaware county, averred their inability to prosecute their business, without serious loss, on account of the "ten hour law." Some shut down, others reduced their wages one sixth, and run ten hours, and another portion continued as usual, having entered into special contracts with their operatives to work the time required of them previous to the passage of the "ten hour law."

The cotton factories of Allegheny city, however, seven in number, stopped July 4, by which two thousand operatives were thrown out of employment, in consequence of the operatives demanding a reduction in the hours of labor to ten, and the proprietors alleging their inability to comply with the provisions of the "ten hour law." The strike continued until August 28, when all the factories resumed work under the "ten hour system," with an abatement of sixteen per cent. in the wages of employés.

While the strike was pending, in the latter part of July, a portion of the hands evinced a willingness to go to work at the old time, and had entered into a contract to do so, as the law permitted, and, on the 31st instant, Penn mill was started with a portion of the old hands. The mill was attacked by those of the operatives who were holding out, shouting and hooting at those within, and sending an occasional stone through the windows. They waited until noon, expecting the hands to go out to dinner, but they had brought their dinners with them to the mill. The fury of the rioters broke loose when this was discovered, and an attack was made front and rear. The doors soon yielded to their assault, and the factory was soon filled with rioters, who amused themselves throwing out of the windows the dinners of the hands, together with bobbins, etc. The strikers finally formed a line, and permitted the hands who had been at work to pass out, amidst shouts, jeers, and scoffs. Having succeeded in stopping work, the strikers retired to the street, without doing any damage to the machinery. The mayor of the city and police, and sheriff of the county, were present, but were wholly unable to afford protection to the hands and property. There were two persons injured in the disturbance. In the course of the week or two following, slight disturbances took place at two other mills that had probably resumed on the old time, but there was no serious damage done.

A number of persons engaged in the tumult were arrested, and held for trial at court, upon a charge of riot. The cases were called for trial in the criminal court, at the December term, but, upon motion of attorneys, the

indictments were quashed, and the case continued. They were again called up during the following month, January, 1849. Four days were occupied in the trial, when a verdict of guilty, as to thirteen, was rendered, while four were acquitted.

The puddlers of Phœnixville rolling-mill, Chester county, engaged in a strike against a reduction of prices, they having received five dollars per ton, but agreed to go to work on or about April 28, 1848, on the terms of the company, $3 50 per ton.

On or about September 12, 1848, the operatives of Hope mill, Allegheny, struck for their former rate of wages, to be paid for ten hours per day. The difficulty was amicably adjusted to the satisfaction of all in a few days.

On or about August 30, the coal operators on the Monongahela river proposed a reduction in the price of digging coal from two cents to one and three fourths cents per bushel, in consequence of which the men refused to work. On the 13th of September, the employers declined to pay more than one and three eighths cents. The men then proposed to resume for one and three fourths cents per bushel. In the meantime, the coal on hand was getting scarce, and prices advancing. The terms offered by the men, one and three fourths cents per bushel, were acceded to, and they went to work on the 22d of September. A violent demonstration occurred at a coal pit where the miners refused to turn out on the 20th of September, in which about thirty strikers took part, but no person was seriously injured. Warrants were issued, and five of the rioters were arrested, but were in a short time discharged.

1850. A strike of the iron-workers of Pittsburgh commenced on January 12, 1850, against the following proposed reduction of wages:

Puddlers,	from $4	00	to $3	50	per ton.
Boilers,	from 6	00	to 4	50	per ton.
Refiners,	from 1	00	to	80	per ton.
Scrappers,	from 3	75	to 2	50	per ton.
Heaters,	from 1	37½	to 1	00	per ton.

The following computation, made and published at that time, shows the earnings of the foregoing before and at the proposed reduction:

A puddler could make in two weeks, of 11 turns, 11 tons 11 cwt., at $4 per ton,	$46 20
Deduct helper, at $1 25 per turn, (11 turns,)	13 75
Two weeks' wages before reduction,	$32 45
Proposed reduction, of 50 cents per ton,	5 78
Wages at proposed reduction,	$26 67

A boiler could make in two weeks, of 11 turns, 9 tons 12 cwt. 2 quarters, at $6 per ton,	$57 75
Deduct helper, at $1 50 per turn, (11 turns,)	16 50
Two weeks' wages before reduction,	$41 25
Proposed reduction, of $1 50 per ton,	14 44
Wages at proposed reduction,	$26 81
A refiner could make in two weeks 70 tons of iron, at $1 per ton,	$70 00
Deduct helper, at $1 25 per turn, (11 turns,)	13 75
Two weeks' wages before reduction,	$56 25
Proposed reduction, of 20 cents per ton,	14 00
Wages at proposed reduction,	$42 25
A scrapper could produce 10 tons per week, at $3 75,	$37 50
Deduct helper, 6 turns, at $1 50 per turn,	9 00
One week's wages before reduction,	$28 50
Proposed reduction, of $1 25 per ton,	12 50
Weekly wages at proposed reduction,	$16 00
A heater could make 24 tons per week, at $1 37½ per ton,	$33 00
Deduct helper, 6 turns, at $1 50 per turn,	9 00
One week's wages before reduction,	$24 00
Proposed reduction of 37½ cents per ton,	9 00
Weekly wages of heaters at proposed reduction,	$15 00

Four mills were started February 18, having procured some workmen from the east, who went to work at the reduced rates. On the same day, the strikers, numbering nearly four hundred, marched in procession through the streets. Trouble was anticipated between the hands formerly employed in those mills and the eastern workmen, but everything passed off quietly. On the morning of March 2, an attack was made on Bailey, Brown & Co.'s mill, where men were at work at the reduction. A large crowd of men, women, and children assembled in the vicinity, and amused themselves throwing missiles at the workmen. A few women, assisted by a number of half-grown boys, endeavored to draw the bars from some of the furnaces next to the street, and thus let the fires out. The mayor appeared on the scene, with a pistol in hand, and commanded the rioters to disperse, threatening to shoot them, if they did not leave. This action had but slight

effect on the mob, who soon rallied, and rushed into the mill, drove the workmen out, and obtained complete possession. The mayor again addressed them, but with little effect, as they became more reckless than before. Mr. Matthews, one of the striking puddlers, appeared when they had taken possession of the mill, and spoke, urging them to retire, assuring them that they were sacrificing their own interest. He was loudly cheered, and appeared to have made considerable impression on the men, but the women were excited beyond all power of control, and they immediately proceeded to the mill of Graff, Lindsey & Co., followed by the crowd. On arriving there, they found the works stopped, the entrances closed, and guarded by policemen. The mayor again entreated them to disperse, and Mr. Matthews also attempted to induce them to leave, and finally succeeded.

The damages amounted to a few hundred dollars' worth of iron at Bailey, Brown & Co's. mill, and one man injured. Warrants were issued and a number of arrests made, and the parties were held to bail at $500 each for their appearance at court. By the latter end of March the mills were tolerably well filled by men secured from other sections, who continued to work at the reduced rates, but the original hands, such as remained in the city, did not resume until the beginning of the summer; many of them, in the meantime, had departed to other places.

Those who were arrested for taking part in the riots, and were held under bail, appeared for trial April 9. The jury returned a verdict of acquittal in the case of three men, and found the remainder of the defendants, two men and four women, guilty in manner and form as indicted, but recommended them to the mercy of the court. The male defendants were sentenced to pay a fine of six and a quarter cents, with cost of prosecution, and undergo imprisonment for eighteen months in the penitentiary. The women were sentenced to pay a fine of fifty dollars each and costs, and imprisonment for thirty days in the county jail. They were pardoned and the fines remitted by Governor Johnson, August 19, 1850, upon petition of eight of the jury that convicted them and a large number of citizens.

The laborers on the railroad west of the Schuylkill river, near Hestonville, Philadelphia, to the number of seven or eight hundred, on the 24th of April, struck against working more than ten hours for a day's work. Riotous demonstrations were made against some gangs that had gone to work on the old time and terms. Two horses belonging to the contractors were forced over the embankment and injured, but no other violence was committed. The sheriff and posse appeared, peace was restored and work resumed. The miners at Minersville and Mill Creek, Schuylkill county, struck for an increase of wages in the beginning of May. They complained that the wages paid were lower than they ever were before at the same season of the year. The result is not known.

The operatives, numbering about two hundred, employed in a cotton and woolen factory, located at Twelfth and Willow streets, Philadelphia, struck against a proposed reduction of ten per cent. No record of the result.

1852. A strike took place among the laborers engaged on the tunnel near Greensburg, Pennsylvania railroad, for an increase of wages above $1 12½ per day. They were replaced by other men, when the strikers interfered and drove them from their work. Four of the offenders were arrested, when work was again resumed.

1853. April 16. The cabinet makers of Philadelphia demanded an increase in their wages. After a few days' suspension the employers agreed to pay the advance demanded.

The journeymen house carpenters of Philadelphia, on the 23d of April, made a demand for an increase in wages, from $1 50 to $1 75 per day, to take effect May 1. The majority of the employers announced their willingness to accede to their demands.

Most of the strikes that took place during the year were of short duration, the times apparently permitting an increase of wages which was generally granted when requested.

1854. A strike of the journeymen ship-builders and caulkers of Philadelphia was inaugurated February 20, for an increase of wages to $2 50 per day. After about two weeks' strike their demand was granted. An advance of ten per cent. was demanded by the journeymen boot and shoemakers of Philadelphia, March 3, and after a few days' strike their demand was acceded to. The coal-heavers of Richmond, (Philadelphia,) who had been paid at the rate of fifteen cents per hour, made a demand for an increase to twenty cents per hour for regular work and twenty-five cents for overtime, and on being refused went on strike May 25. Other hands were engaged to take the place of the strikers at the old prices, and a large police force was kept to prevent any disturbance. At the request of the strikers the employers conferred with them June 20, when they offered to compromise on seventeen and a half cents per hour. The employers informed them that they were not in need of hands, as the wharves were full of workmen.

The compositors on the *Philadelphia Register* struck because girls were employed in the jobbing office department. (The exact day of month not known.) Four of the compositors were arrested on the charge of conspiracy, in trying to prevent the issuing of the paper. The paper was issued July 10 by non-union men and boys.

1857. The journeymen house carpenters of Philadelphia went on a strike about the middle of May, for an advance of 25 cents per day—from $1 50 to $1 75—which terminated successfully to the employés by the 6th of June. They adopted a resolution making $1 75 per day as the wages from April 1, to November 1, and $1 50 a day between November and April.

1858. The operatives of Philadelphia, whose wages were reduced during the financial crisis of 1857, attempted, during the summer months, to bring their wages back to the old standard, and, as a consequence, strikes of short duration were of frequent occurrence,

the records of which are unattainable. From all that could be learned, in a few cases, only, were they successful.

1859. In February the shoemakers of the ladies' branch of Philadelphia, numbering about 1,700, struck for the purpose of establishing a uniform rate of prices in all manufacturing shops of their branch in the city, which would advance prices six per cent. in some shops, and ten and twelve in others, according to quality of work. Before the close of the month about a thousand had obtained work at the prices asked, who contributed towards the maintenance of those who were still out and assisting such as desired to leave, to do so. A great many went west during the strike. March 10, the shoemakers on the men's branch, who numbered about 606, demanded an advance of five per cent. on most descriptions of work, and refused to take out any more work until the prices were obtained. The leading class of boot and shoe manufacturers generally acceded to the demands of their employés by the 17th of March, when work was generally resumed.

The coal dealers and operators at the Richmond coal wharves, Philadelphia, reduced the price of compensation of labor from fifteen cents to twelve and a half cents per hour, about the latter part of August, which caused a strike of the greater portion of the hands. There were eighteen coal wharves at Richmond, which employed about fifteen hundred men, when a fair business was doing. But the coal trade being dull, the operators did not seem to care very much whether the men worked or not. Four wharves, employing between two and three hundred men, still continued work, paying the regular rates, fifteen cents an hour. Some of the operators advertised for five hundred laborers to take the place of the strikers. No record of the final result could be obtained.

A strike of the journeymen hat-finishers of Philadelphia took place on the 27th of July, against a reduction of from twenty-five to fifty per cent. on a scale of prices, which was adopted by the manufacturers themselves. After three weeks' idleness, work was resumed at the old prices.

A protracted strike of the coal miners occurred, during 1859, along the entire Monongahela Valley, and the adjacent coal mines in the counties of Allegheny, Washington, and Westmoreland. It was almost the universal custom to pay the miners by the car, which they filled in their working chambers, and which was supposed to contain a given number of bushels. Great dissatisfaction manifested itself among the miners concerning the size and uniformity of the cars they filled, many of them, they alleged, having a capacity for more coal than they were accredited with, while it was incumbent upon them to fill each and all of the cars as they came to them for a given number of bushels. In computing their wages, however, it was done by the number of cars, upon a basis of uniformity. The dissatisfaction became so great that, about the middle of July, the miners demanded that scales should be erected at the pit-mouth, and that each man's coal should be weighed, and accredited in accordance with a given number of pounds to the bushel. To this the operators objected, and, as a result,

a general strike ensued. The exact number engaged in the strike cannot be given; but, as it included the mines within the territory above indicated, they were evidently a very large body of men. As the strike progressed, large mass meetings were held in various places throughout the district, and were attended *en masse*, where the issues were discussed by leading speakers of their own calling. As there were no earnings, their means of subsistence soon vanished, and, notwithstanding their heroic fortitude, they were finally compelled to yield and resume work upon the old basis. The strike virtually ended about the middle of November, although at a number of places the men stoutly held out a month or two longer, while a few mines had started as early as the 1st of September. During the progress of this strike, a demonstration was made against some forty miners, who had begun to work in the mines of Joseph Keeling & Co., in Lower St. Clair township, Allegheny county. On the 20th of September, between sixty and seventy women took their position at the pit-mouth of the foregoing firm, while about one hundred and fifty of the striking miners stationed themselves close by. Posted thus, the women demanded that those at work inside must come out, and as they did so, they were seized, and each one requested to submit to an oath that they would no longer "blackleg," or work while the majority were on a strike. Those who refused were roughly handled, and as they escaped, were subjected to a volley of stones and other missiles. No serious injury or loss of life was sustained. Twenty-seven persons, including both men and women, were arrested by the authorities, and held upon a charge of riot. They were tried at the court of quarter sessions, upon the 27th and 28th of October, and were convicted, the jury recommending them to the mercy of the court. Those who were called up for sentence were required to pay fines ranging from five dollars to ten dollars, and cost of prosecution.

1860. It had been customary at the locomotive manufactory of Messrs. Baldwin & Co., Philadelphia, to pay their machinists and blacksmiths, fifty per cent. advance on their wages, or "time and half time" as it was termed, when required to do night work, in addition to the labors of the day. In consequence of an increase of business at this establishment, the services of the employés were frequently necessary at night, and was compulsory on the workmen when required. In the early part of March, 1860, the employers reduced the amount for night work to twenty-five per cent. on day labor, or "time and a quarter." The men refused to submit to the reduction, and went on strike.

The following memorial was presented to Messrs. Baldwin & Co., but they refused to accede to its request.

"The undersigned, men in your employ, would most respectfully request you to alter the rule of your establishment, requiring us to work over-time at the rate of "time and quarter time," to the rate of "time and half time," or entirely abolish over-time altogether.

"On proffering this request, we would respectfully submit for your consideration, the following reasons which move us to our present petition:

"*First.* Previous to the forming of the present rule, we were always paid for all over-work at the rate of "time and half time," and we cannot cheerfully agree to a rule which is virtually a reduction of wages, and a request to make an encroachment ourselves upon the ten hour system, which we and others battled for so long, and which we respectfully submit is a blessing we should highly value, and should preserve as long as possible for ourselves and our fellow workmen in general.

"*Second.* It is generally admitted by foremen and men, that no one is anxious to work over-time; that it is not asked for as a favor by the men, but is looked upon as an evil and an unpleasant duty, which we are compelled by circumstances to comply with.

"*Third.* It is universally admitted by all workmen, that after the performance of a fair ten hours' work, we have claims upon us to discharge, which require the interval between six o'clock at night, until seven o'clock in the morning. These claims come in different guises, such as study, family obligations, rational pleasure, and necessary relaxation to fit us for the fair discharge of our duties on the coming morn, and in a hundred other shapes, which readily present themselves to the men who work all the daylight hours, and have only darker hours of night to meet the many calls, which even men of wealth find the combined hours of day and night too brief to properly fulfill.

"*Fourth.* This rule can be abused in the following manner: If a foreman takes a dislike to a man, he can discharge him for refusing to work under this rule, (when he can find no other reasonable excuse for neglect of duty, etc.,) and wishing for equality and fairness, we feel we are in duty bound to resist a rule that offers an opportunity for a foreman to wreak his dislikes upon a man who is a good and steady workman, but unfortunately is not a favorite with his foreman, while with friends he evades this rule by giving them work by the job, instead of at the rule of "time and a quarter," but which is virtually an evasion of the rule.

"In conclusion, we would respectfully solicit from you an early and impartial consideration of our petition, and if you will accede to our wishes, we will be thankful for your generous support, and assure you, that contentment being restored again to the men, they will soon prove that your favors are advantageous to yourselves, by the ready willingness with which they will work, and the care they will give to the interests of your firm, which are confided to their hands, and thus ever preserve the supremacy which your good work is generally conceded to have gained over your rivals."

The request, as already stated, was refused. New hands were engaged to take the place of the strikers, none of whom it is said were allowed to return.

1862. Strikes of short duration took place in a large number of localities throughout the State, for an increase of wages, during the summer of 1862, generally terminating successfully to the employés. Their demands, however, in view of the increased cost of the

necessaries of life and the advanced prices demanded for other articles, did not appear to be exorbitant; while the price of commodities had increased considerably before the wages of labor made any progress upward.

1863. The carpenters and painters of Philadelphia, who had been receiving from $1 50 to $1 75 per day, in the month of March demanded an increase to two dollars per day, and after a short strike their demand was acceded to.

The stove and hollow-ware moulders of Philadelphia went on a strike in May, for an increase of wages, which was granted; but the strike was continued, in consequence of there being employed a greater number of apprentices, than was laid down by the rules of the union established by the trade. The rules of the union allowed six apprentices to the hundred hands. Four of the largest foundries carried on their business by the labor of the apprentices, who were instructed by the bosses. The final result not reported.

The sail-makers at the navy-yard, Philadelphia, struck for an increase of wages, demanding $2 50 per day, or twenty-five cents per hour, the same as paid outside. Sometime previous to November, an offer was made by the employés to work ten hours per day, but the authorities refused, or did not think they had authority to light up the sail loft. Some time elapsed when finally the question was settled by the Government allowing the loft to be lighted, in order that the workmen could make full time at twenty-five cents per hour, and thus realize $2 50 per day. The sail-makers then demanded $2 50 per day, short or long, and ignored the ten hour arrangements that had been agreed upon, but the United States officers refused to submit to the demand.

1864. A strike of the operatives of the Reading railroad for higher wages, took place in July, which somewhat embarrassed the United States Government in consequence of its not obtaining its usual supply of coal. A large number of laborers employed by the Government on military railroads near Washington, were brought to Philadelphia and put to work on the Reading railroad, but the difficulties were adjusted in the course of ten days and the regular employés returned to work again.

1865. Strikes were frequent during the year 1865, chiefly against a reduction of wages, but generally ended by the submission of the employés. The ingrain carpet weavers of Philadelphia had been receiving $17\frac{1}{2}$ and 18 cents a yard for weaving, until December, when they were reduced to $14\frac{1}{2}$ and 15 cents a yard. They subsequently were advanced again to 16 and 17 cents a yard, which was the price paid in the summer of 1867, when the carpet manufacturer "resolved" to reduce the weavers 3 cents per yard on all grades, which they resisted and went out on a strike, but whether successful or not is not reported. In December the weavers held meetings for the purpose of organizing a board of arbitra-

tion between the manufacturers and themselves, whereby all difficulties might be harmoniously settled without resorting to strikes.

1866. The operators on the Monongahela river made an attempt to reduce the price of mining coal from 4 cents per bushel to $3\frac{1}{2}$, and in some cases to 3 cents, which the miners resisted, and ceased to work during the month of June, 1866, but as no report is found in regard to this strike, it is presumed, from a subsequent notice, that the miners either resumed at the old rates or that the reduction was not general, as we find that in September, 1867, that a strike took place at several mines against a reduction from four cents to three and a quarter per bushel, which terminated about the first week in October, by the miners going to work at the reduction.

1867. The stove moulders of Pittsburgh were notified by their employers in the beginning of January, 1867, that their wages were to be reduced twenty per cent., in consequence of a decline in business. The International Molders' Union, who were in session in Boston at the time, indorsed the action of the molders in resisting the reduction. The strike continued until the latter end of March without change, when new hands were procured by all the foundries interested in the strike; the firm of A. Bradley & Co. obtaining the majority of them. The introduction of the new hands caused considerable agitation, and for a time, fears were entertained of a disturbance between the strikers and them, to prevent which, the mayor sent a strong detachment of police to guard the men and premises. No outbreak occurred. The strikers were supported in the meantime by the International Molders' Union and by donations from outsiders, in all amounting to about $40,000, those that were married receiving $7, and the single men $5 per week, but other molders coming from all quarters in such numbers, it became impossible to procure sufficient funds to supply them all. The molders expended $18,000 in building a foundry to be operated on the coöperative plan; the enterprise, however, proved a complete failure and the entire capital invested was lost. The buildings are now occupied by the Solar iron works, known as Clark's mill. This strike was the largest and most protracted ever undertaken by the stove molders in this country. It was fully nine months before the molders consented to return to work. The Union was completely broken up, as none could obtain work unless they severed their connection with that body, and even then a large number failed to procure employment for many months thereafter.

After the great strike of the puddlers of Pittsburgh, in the years 1849 and 1850, which resulted in a reduction from $6 to $4 50 per ton, no difficulty of a general character occurred for many years. Disputes would frequently occur at various mills, but they were local, and did not at any time assume such proportion as to involve all the works. Wages were gradually reduced to $4 and $3 50 per ton, the higher figure being partly paid in store

goods, while the lesser was paid wholly in cash. The advance in iron and increased demand for labor, after the breaking out of the war in 1861, stimulated wages, and, as a consequence, the price for puddling became gradually higher. During 1863 and 1864 several strikes occurred, occasioned by demands made for an advance in wages, but they were of short duration, and, as a rule, resulted in the demand being complied with, the price being at the close of the latter year $9 per ton. In January, 1865, the price was reduced to $8, and with a view to avoid future trouble a conference was suggested, to be composed of representatives from both sides. The meetings began in January, and finally resulted in the adoption of the following scale of prices:

Memorandum of Agreement,

Made this 13th day of February, 1865, between a committee of boilers, and a committee from the iron manufacturers, appointed to fix a scale of prices to be paid for boiling pig iron, based on the manufacturers' card of prices, it being understood, either party shall have the right and privilege to terminate this agreement, by giving ninety days' notice to the other party, and that there shall be no deviation without such notice.

When the manufacturers' card of prices is at the rates named below, the price for boiling shall be at the prices opposite, per ton of 2,240 pounds.

MANUFACTURERS' CARD OF PRICES.	Price of boiling, per ton.	MANUFACTURERS' CARD OF PRICES.	Price of boiling, per ton.
$8\frac{1}{2}$ cents per pound, ...	$9 00	$5\frac{1}{2}$ and $5\frac{1}{4}$ cents per pound, . . .	$6 00
$8\frac{1}{4}$ cents per pound, ...	8 75	5 and $4\frac{3}{4}$ cents per pound, . . .	5 75
8 cents per pound, ...	8 50	$4\frac{1}{2}$ and $4\frac{1}{4}$ cents per pound, . . .	5 50
$7\frac{3}{4}$ cents per pound, ...	8 25	4 and $3\frac{3}{4}$ cents per pound, . . .	5 00
$7\frac{1}{2}$ and $7\frac{1}{4}$ cents per pound, . . .	8 00	$3\frac{1}{2}$ and $3\frac{1}{4}$ cents per pound, . . .	4 75
7 and $6\frac{3}{4}$ cents per pound, . .	7 50	3 and $2\frac{3}{4}$ cents per pound, . . .	4 50
$6\frac{1}{2}$ and $6\frac{1}{4}$ cents per pound, ...	7 00	$2\frac{1}{2}$ cents per pound, . . .	4 00
6 and $5\frac{3}{4}$ cents per pound, ...	6 50		

Following the adoption of this scale, the price of iron declined rapidly, and, as a consequence, wages fell in proportion, the reduction reaching as low as $5 75. Early in July the puddlers gave the required ninety days' notice to terminate the scale, and at the expiration of which time, (iron in the meantime having advanced,) they demanded eight dollars per ton, which was conceded, continuing to be the ruling price until the close of 1866, when the puddlers demanded an advance of one dollar per ton. This demand was reluctantly complied with; it was paid, however, but a very short time, when the manufacturers gave notice of a reduction of two dollars per

ton, which proposition was promptly rejected by the workmen. Although the proposed reduction or no work was generally agreed upon by the manufacturers, their action was not simultaneous, for the mills suspended one by one, as their orders on hand were filled, and as a result, it was two or three weeks before the lockout became general. The struggle began in some of the mills as early as December, 1866, and during the following month gradually extended to all, thus making the lockout general. The suspension continued until the middle of May, when it terminated by the manufacturers paying the old price of nine dollars per ton. Much of the regular trade had been, in the meantime, diverted to other sections of the country, in consequence of which the works did not assume the activity that had formerly characterized the "smoky city." To complicate matters, the manufacturers had arranged during the "lockout," to bring quite a number of iron-workers from Belgium. They arrived after the mills had resumed, and about two hundred of them were put to work. Disturbance was anticipated by many, but the new hands were not molested. They were employed but a short time, however, as their work was not up to the standard, and their places were soon filled by the old workmen. With a view to cultivate a better feeling with the employer, and to prevent the possibility of further strikes, the men again resolved to ask for a conference with the manufacturers, for the purpose of adopting a scale of prices. A committee of puddlers was appointed by the Union, to draft a circular to be addressed to all the firms upon the subject. The circular which was prepared by the committee, and addressed to the manufacturers, was as follows:

"*To the Iron Manufacturers of Pittsburgh and Vicinity.*

Boilers' Union Hall,
Pittsburgh, Pa., *May 24, 1867.*

Sirs: The undersigned representatives, committee of the Iron Boilers' Union of Pittsburgh and vicinity, having been selected for the purpose of taking into consideration the propriety of devising measures calculated to harmonize the conflicting interests that have existed, or do exist, between them and their employers, would respectfully represent, that at a meeting held on the above date, the following course was unanimously agreed upon:

1. That we favor the establishment of a rule, fixed upon the average price of the different grades of manufactured iron, as a basis upon which the wages of our labor shall be governed.

2. Having a knowledge of our inefficiency in maturing such arrangements, we respectfully request our employers, through the instrumentality of their association, to prepare such an arrangement, and, at their earliest convenience, submit the same to us for our deliberation.

3. That after a reasonable time for consideration of the proposition, we will hold ourselves in readiness to confer, by appropriate committees, with

our employers, with a view to accept, alter, amend, and finally consummate said agreement, thereby closing all avenues that lead to "strikes," "lock-outs," etc., which we believe are injurious to all parties concerned.

Convinced that it is injurious to employer and employed that Pittsburgh shall continually be the battle-ground of wages for the country, and being honest in our intentions, and conscientious in our purposes, we hope all parties concerned will act with a spirit of equity and magnanimity."

The employers, in due course of time, responded affirmatively to the foregoing circular, which resulted in the appointment of committees, representing both sides, who convened, and, after repeated meetings, finally agreed upon the following scale, which continued in force for the succeeding seven years.

Memorandum of Agreement,

Made this 23d day of July, 1867, between the committees of boilers and manufacturers, to wit: That nine dollars per ton shall be paid for boiling iron until the 17th of August, 1867, from that time until the 15th day of September, 1867. eight dollars shall be paid. After latter date, the following scale shall be operative:

MANUFACTURERS' CARD OF PRICES.	Price of boiling, per ton.	MANUFACTURERS' CARD OF PRICES.	Price of boiling, per ton.
5 cents per pound, ...	$8 00	3¾ cents per pound, ...	$6 75
4¾ cents per pound, ...	7 75	3½ cents per pound, ...	6 50
4½ cents per pound, ...	7 50	3¼ cents per pound, ...	6 25
4¼ cents per pound, ...	7 25	3 cents per pound, ...	6 00
4 cents per pound, ...	7 00		

Being twenty-five cents per ton reduction, or advance in the price of boiling for each change of one quarter of a cent per pound on card rates.

1868. On the 1st of January, the wages of the mechanics in the shops of the Delaware, Lackawanna and Western Railroad Company were reduced ten per cent., and on the 17th of the month the conductors in the employ of the same company were reduced five dollars per month, and brakemen from $2 to $1 80 and $1 65 per day. The wages of the miners were not interfered with. The furnace and rolling-mill men in the employ of the Lackawanna Iron and Coal Company were reduced from ten to fifteen per cent., which went into effect January 1.

The employés of the machine and car shops of the Delaware, Lackawanna and Western Railroad Company made a demand for the restoration of the wages paid previous to January 1, which being refused, they entered upon strike April 1. Out of six hundred and forty-two men employed in the shops, one hundred and ninety-six continued at work. The strike terminated on the 14th, and all the strikers returned to work at the old rates, excepting about fifty, whose places had been filled by other hands.

During the session of 1868, the Legislature of Pennsylvania enacted the "eight hour law," which was to go into effect July 1. While the effect of this act was undoubtedly only to give the moral weight of legislative opinion in favor of shorter hours of labor, carrying with it no compulsory or enforcing power, still it was looked upon as a concession to the demands of labor, and it was expected among laborers, to a very great extent, that it would work a change in that respect. About the middle of June, a number of workmen at one of the collieries in the Mahanoy valley, while discoursing over their dinner, their attention was called by one of their number, that in a few days (July 1) the eight hour law would go into effect. An agitation was provoked that led the hands at that colliery to demand of the managers, that after that date the work should be run in compliance with said law. Their demand not being complied with they quit work, and proceeded from one colliery to another until every colliery in the valley had stopped. Their numbers were increased by additions from all the works they visited, until nearly the whole working population of the valley were on the march. They separated into squads and spread all over the county, (Schuylkill,) and in a few days every colliery was at a stand. From twelve to twenty thousand persons gathered at a mass meeting at Mahanoy City, where addresses were made earnestly and effectively urging the formation of a union.

The answer to the appeals made by them to the northern fields to coöperate in favor of the eight hour system, had been that they were acting together in a union, and could not combine with the men of Schuylkill unless they also formed a union. At this meeting measures were taken to effect such an organization, which resulted in the forming of the St. Clair Workingmen's Benevolent Association, and the work of organizing was continued during the summer, and by fall, fully effected throughout the county.

Previous to the first of July, the Delaware and Hudson Canal Company posted notices at their collieries, (Luzerne and Lackawanna counties,) to the effect that "on and after July 1, the hours of labor would continue as before and remain unchanged, with the same compensation, and all persons remaining in the employ of the company would be considered as agreeing to and accepting the same."

The car repairers at the Delaware, Lackawanna and Western Railroad Company's shops turned out at four o'clock, P. M., July 3, many of the men, however, continued at work as usual. The Dickson Manufacturing Company's men, and the employés at the Cliff works, Scranton, Lackawanna county, turned outat the same time. Keely & McAndrews' men, employed at the new bridge, Scranton, also refused to work after four o'clock, or eight hours a day. The company insisted that none would be allowed to go to work exeept for ten hours per day as usual. All had resumed work by the 15th, on the old system.

Delegations of miners, laborers, and mechanics, numbering several hun-

dreds, from Carbon, Schuylkill, Luzerne, and other counties representing strikers, held meetings in the vicinity of Scranton agitating the eight hour question. and urging a general strike throughout the anthracite coal fields. The agitation of the eight hour system was continued for several months, causing almost a general suspension throughout the anthracite coal fields, which had the effect of so depleting the market of coal, that the demand became active at good prices, and by the first of September, general resumption of work had taken place, on the old terms.

The employés of the Philadelphia Gas Works, numbering about five hundred, made a formal demand for an advance of twenty-five per cent. in their wages, on the 15th of July. The majority of the board of trustees being absent from the city, those who were there presented a communication substantially offering an advance of ten per cent. on the prices paid, which was refused, and the men quit work the same evening at nine o'clock, expressing a determination to accept nothing less than their demand. The "stokers" and "helpers," who represented the strikers, were receiving $2 15 and $2 05 per day, respectively, excepting at the Point Breeze works, where the same class of labor was paid $2 25 and $2 15. They worked every day in the week, and twelve hours a day. The engineer of the works advertised next day for five hundred hands to take the place of the strikers, and recommending to the citizens the necessity of being economical in their use of gas. There was no response to the call for hands, and, as a result, the city was left in a state of total darkness on the night of the 17th. The gas trustees acceded to the demands of the workmen on the 18th instant.

1869. * The Workingmen's Benevolent Association, of Schuylkill, became connected with organizations of the rest of the coal-fields, and a general council of the several associations was formed March 17, 1869, at Hazleton, in which the different counties were represented as follows, viz: Schuylkill, 4; Luzerne, 4; Carbon, 3; Northumberland, 3; Columbia, 2, and Dauphin, 1.

Throughout the winter following the "eight hour strike," and up to March, discussion was rife as to the best means of securing steadiness of work at fair wages. The result of these discussions was the meeting and organization of the "general council" referred to above, at which meeting they resolved to establish a newspaper to advocate their interests; and as the market showed indications of glut from the active production of the last fall, it was resolved to prepare for a general suspension of work, which was to be ordered by the president, when four counties should vote in favor thereof, of which one week's notice should be given. As is indicated by this action, the impression was strong in the minds of the men and their representatives, that a minimum should be fixed to the price of coal, below which it should not go, and that a general suspension of all work

*The report here given relating to labor troubles in Schuylkill county for 1869 to 1872, are condensed from the bureau report for 1872, by John Tomlinson, Esq.

should take place when the market would not take it at that price, to continue until the consumption should make the demand equal to it. This idea was not looked upon universally, even by operators, as chimerical. The movement was hopefully looked upon as a possible solution to the question of over-production; failing, however, to remember that, as long as through any cause, a profit should be maintained on coal mining, speculators would infest the trade in their attempts to make sudden fortunes, and that, should it prove possible to hold the trade to such an arrangement, the year would be consumed pretty nearly by suspensions. Wise or unwise, this course was resolved upon by the general council, and on the 29th of April, 1869, Mr. John Siney, as president of the Schuylkill association, in accordance with above resolution, ordered a suspension of all work except rock work, timbering, and repairing, to go into effect May 10. This suspension became general throughout the anthracite region, with the exception of the "Pennsylvania Coal Company" and the "Delaware, Lackawanna and Western Coal Company," who, by offering their workmen extremely liberal wages, succeeded in tempting them to break faith with their fellows, as though no suspension had taken place. The suspension, with the above exceptions, continued throughout the whole northern anthracite region for five months, from April to the end of August.

Another meeting of the general council of the W. B. A., was held at Hazleton, May 11, and in pursuance of the general idea of preventing overproduction, passed resolutions restricting miners to one car or mine wagon of coal per day, less than the usual day's work, and work by the yard to be restricted proportionately.

The subject of the basis principle for the adjustment of wages was discussed and agreed upon, the minimum price of coal upon which wages were to be based being fixed at five dollars per ton at Elizabethport, and three dollars at Port Carbon.

The question as to what the basis for wages should be, and what the percentage of advance as the price went up, was referred to the executive boards of the several districts for settlement, only providing that if any district failed to secure a fair basis, they were to be supported by those who did succeed.

On the 4th of June, 1869, the executive committee of the coal associations of the Schuylkill region submitted the following proposition to the men:

First. Prices of labor to be regulated by the prices of coal, taking the average of all sizes at Port Carbon. The percentage to be regarded in making the average to be: Large sizes, seventy-five per cent.; chestnut, twelve and a half per cent.; and pea, twelve and a half per cent.

Second. When the average prices of coal is three dollars per ton at Port Carbon—

Outside labor to be,	$11 00 per week.
Platform men,	11 50 per week.
Inside labor,	12 00 per week.
Miners,	14 00 per week.

These all to be clear of costs.

Third. For each advance of twenty-five cents per ton in coal at Port Carbon, an advance of fifty cents per week, and five cents per wagon; and for each decline of twenty-five, a similar reduction. Yardage to be in proportion.

Fourth. The advance and decline in the price of coal to be determined by a board of five operators, to be appointed by the W. B. A., who will pledge themselves to make a true and correct statement of their sales for each month.

Fifth. The rates of wagon work and yard work to be those now existing at each colliery, on which the advance or decline is to operate, unless modified by amicable agreement between the employer and employé.

Sixth. No stoppage of work until a notice of six days has been given.

Seventh. If any colliery represented in this association is prevented from starting by reason of any threats against bosses or other employers; or by reason of any attempted dictation as to who shall, or who shall not be employed, whether as boss or other employé, we, as representatives of the coal association, pledge ourselves to remain idle until such colliery be able to start wholly free from any such restraint or interference.

Eighth. We also require that the local committees shall abstain from all illegitimate interference with the workings of the collieries.

An examination of this proposition will exhibit the real animus, and very nearly the only cause of disagreement, that led to the very disastrous conflicts that followed this first year of operations under the basis system. In the old time of pitiless oppression on the one hand, and violence on the other, objectionable rules or orders were often followed by violent threats and violent acts against the bosses or other confidential servants who had the responsibility of their enforcement. And as is the case in all disorganized communities here, where the arm of the law was comparatively powerless to reach an offender against its sanctity for reasons already explained, and where the lack of organization left every man of their class standing, in a great degree, isolated from the rest, the most reckless, desperate, and vicious of the community exerted the greatest influence, and gave their tone to the general character, instead of receiving tone from the more thoughtful, well-disposed, and respectable. As a consequence, the perpetration of outrages were frequent, generally undetected, and never punished, for the simple reason that isolation had made the better elements weak, and given immunity to the worst. As a consequence, the character of the whole class suffered, all being held in the same repute. The operators looked upon their organization only as an instrumentality of greater possible outrage, and sought to guard against it by special agreement, such as

contained in the seventh and eighth clauses of this proposition. *If the operators could* at this time, have divested themselves of the prejudices so industriously cultivated for years, and have met the men in this organization in a spirit of amity; *could have realized* what has since been demonstrated, that the association was to exercise an influence that would quell the turbulent, or drive them from the region, and bring into controlling influence the better elements of the working population, much of the difficulty that afterward occurred, and was attended with such distrous results, might have been avoided.

As it was, many held that the organization itself, and the object it had in view, was in violation of the laws, and that at the first act of its authorities, looking like combination for any tangible action in reference to wages, or other matter of specific interest, the members participating would be liable to prosecution under the conspiracy laws.

So strong was this impression, and so confidently asserted, that the effect was to deter many from attaching themselves to the association who otherwise would have done so, and when the contest came in which the body refused to work until some question at issue should be settled, these persons would disregard its action, and, by doing work that was prohibited by its decision, array themselves against their fellows, and take sides with the employers. There was probably no cause that operated so effectively to keep alive the feeling of hostility existing between the two parties as this.

The operators claimed that any pressure brought to bear upon their workmen individually, affecting the question as to how, when, or for what wages he should work, by any combination of other workmen, was a violation of individual rights, and an act of conspiracy. On the other hand, the W. B. A. claimed that their right to organize for mutual protection, was exactly the same, no more, no less, as that of the operators. That if the combination of individual workmen that constituted the W. B. A.. could not determine the conditions upon which its members should work, and if such determination and consequent action constituted them conspirators within the meaning of the law, they really had no right to organize at all—were helpless in the hands of those who used their labor—were bound to accept such compensation as were offered them, and that, while the employing interest could unite and plan, and arrange with each other to reduce wages by concerted action, the workmen must stand isolated from each other, with no power of mutual defense; in short, were outside, so far as their mutual pecuniary interests were concerned, of the protective shelter of the law. They claimed that the necessity of their organization had been demonstrated by their sufferings and degradation, and that if (as they asserted was true,) preference was given in employment to those of their number who did not recognize that necessity, or recognizing it, were so unmanly as to permit themselves to be tempted to embarrass the general effort by aiding their antagonists, they would have a right to determine, collectively, that they would not work in the same employ with them. Otherwise,

the value of their effort might be entirely neutralized by those who were the least honorable among them being most favored in employment, and thus the very vices of their class, which one of their chief purposes was to eradicate, be used as the instrument of their defeat.

It is true, also, that many of the operators were not obnoxious to the charge that was in this regard made against operators generally, yet in the heat of the struggle, their voice was for the time lost in the turmoil of contention, as was on the other side, that of the more discreet and conservative of the workmen.

The result was, that upon considering the proposition made by the coal association, the general council of the W. B. A., having met at Mahanoy City, on the 9th of June, and resolved, "that the object of the suspension having been attained by the depletion of the surplus of coal in the market, on and after June 16, all districts or branches that can agree with their employers, as to basis and conditions of resumption, do resume work." The executive board of the W. B. A. of Schuylkill county, declined to asquiesce in, or discuss the seventh or eighth clauses of the operators' proposition, on the ground that the workmen claimed no right to illegitimate interference in the working of the collieries, or as to who should be employed. They were satisfied with the basis proposed by the operators as to wages in the main, and in order to avoid discussion of or committal on the other propositions it contained, made the following counter proposal, viz:

"That we demand for outside labor $11 per week; platform men, $11 50; inside labor, $12; and miners, $14 per week, when working on wages; all inside work to be clear of expenses; also, that contract work be raised in accordance therewith. This is to be asked when coal is selling at Port Carbon at three dollars per ton.

"That we receive one fifth of all advances hereafter, and all reductions to be taken off in accordance to the above advances.

"The advance and reduction to be on all sizes above pea."

After some consideration, this proposal, varying but little from their own, the operators accepted, and work was resumed in Schuylkill county.

For the months of June. July, and August the wages were agreed upon by the committees representing the two associations, upon hearing the statements of the presidents as to prices, the high percentage for August having been given to make up for a deficiency in that of July. After August, the prices of coal were reported in writing by five firms, selected each month for that purpose, on the 25th of the several months, and the wages were based upon the average price so obtained; it requiring, however, an advance or decline of twelve and one half cents per ton in price to effect an advance or decline in wages. The work was generally begun in the county from the 10th to the 15th of June, and the wages paid during the year were as follows, given by months—the rates being wages of laborers outside, inside, and miners by wages:

Months.	Rate.	Wages Paid per Week.		
		Miners.	Inside laborers.	Outside laborers.
June, . . .	10 per cent. above basis, ...	$15 40	$13 20	$12 10
July, . . .	15 per cent. above basis, ...	16 10	13 80	12 65
August, .	35 per cent. above basis, ...	18 90	16 20	14 85
September,	Basis, ...	14 00	12 00	11 00
October, .	10 per cent. above basis, ...	15 40	13 20	12 10
November,	15 per cent. above basis, ...	16 10	13 80	12 65
December,	Basis, ...	14 00	12 00	11 00
	Average, ...	$15 70	$13 46	$12 34

The above gives the rates of wages paid for wage workers only. Those working by contract can only be estimated.

The basis system was refused by the operators of Luzerne and Lackawanna counties, and on the 23d of July the miners at Pittston, Luzerne county, voted to resume work on the company's terms, viz: "Advance of wages if coal advanced, provided they would drop all claims for basis." The strike was finally terminated, August 31, throughout the region, the men going to work at the old prices. A large body of men appeared at Hyde Park and other places, with the intention of driving the men from their work in the mines that had started. The mayor of Scranton promptly called a meeting of the citizens, and about a thousand of their number enrolled themselves as a special police to protect the miners, which resulted in the dispersion of the rioters during the night without creating any further disturbance.

1870. On the 29th of December, 1869, the Anthracite Board of Trade, at a meeting held at Tremont, Schuylkill county, offered the following terms for 1870, at the same time publishing their determination to adhere to the proposition:

Resolved, That hereafter the basis shall be fixed at $2 per ton at Port Carbon, and wages, whilst coal brings that rate, shall be—

Outside labor, ...	$7 50 per week.
Inside labor, ...	8 50 per week.
Miners on wages, ...	10 50 per week.

The contract work to be reduced from the present $3 basis forty per cent.

The advance of wages as the price of coal advances shall be as follows: When the average of all sizes, from lump to chestnut, (both inclusive,) reaches $2 50, five per cent.; $3, ten per cent.; $3 25, fourteen per cent.; $3 50, seventeen per cent.; $3 75, twenty-one per cent.; $4, twenty-five per cent., and further advances in the same proportion. These prices to be obtained from the average actual sales as shown by the books of five operators. *And in all cases costs* (cotton, oil, tools, &c., needed in the mines, amounting to from $1 50 to $2 per month,) *must be paid by the parties using the same.*

This proposal was not formally rejected, but was received with such indignant contempt by the men that they did not even give it consideration. The feeling excited by it was intense and bitter to the last degree. Probably nothing could have been devised at that time that could have so effectively and thoroughly neutralized all other appeals and influences brought to bear on them, and have created so completely a unity of purpose and action among them as this. They accepted it as the guage of war, held it to be a notice of the coal association of its determination to break their organization in pieces by forcing the acceptance of terms that would destroy it, or attempting to starve them into submission by refusing to work on any other. Their answer to it was, to demand the $3 basis as a minimum, requiring that wages should not go below the basis, whatever coal might sell at. The operators who were not members of the Anthracite Board of Trade continued steadily at work, while many of those who were, felt that the proposition was a mistake, and, although they stopped, were restive and dissatisfied. This feeling was so general, that on the 17th of January, 1870, the restriction on work was removed by the Anthracite Board of Trade, and it was agreed that all might work who thought proper to do so, and work was quite generally resumed.

On the 18th February, the Anthracite Board of Trade withdrew the above offer, and proposed a new one at a basis of $2 50 per ton at Port Carbon, with wages as follows, to wit:

Outside labor to be,	$9 00 per week.
Inside labor to be,	10 00 per week.
Miners wages,	12 00 per week.

Miners on contract work to be reduced thirty per cent. below present prices. Inside work, clear of expenses, (expenses here mean the same as costs in the former proposal,) wages to advance twenty per cent. on every advance of one dollar in price of coal, or in that proportion for any smaller advance.

From the best information attainable by the Bureau, adds Mr. Tomlinson, in the report of 1872–3, it is believed that if this proposition had been made on the first of the year, with explanations, and in an amicable manner, instead of the former unfriendly one, and the threats that were circulated of breaking up the Workingmen's Beneficial Association, at any cost, had been denied or disavowed, it would have been accepted, inasmuch as there was no disposition manifested in the northern coal fields to join in a general suspension to keep the price of coal up to $3 per ton. But, as it was, coming after the action that the men called the declaration of war, it was regarded as their first victory over the Anthracite Board of Trade, and there was no disposition to yield any part of the position they had taken, or accept anything that looked like compromise. It was generally felt among lookers on, who sympathized with the workmen, that they ought to have accepted this offer, and the leaders, as they were called, gave their influence in that direction. The proposition, however, came too late, consid-

ering the action that preceded, and it was definitely rejected, the men insisting stubbornly on the $3, or basis of 1869.

On the 15th March, 1870, a very large meeting of operators was held at the Union Hall, in Pottsville. The refusal of the workmen to accede to the $2 50 basis had again united them, and seventy-six firms, representing an annual product of over four million tons of coal, were present, and agreed to stand by the offer of the Anthracite Board of Trade of the 18th February, and giving notice that if it was not accepted, they would suspend work on the 2d of April. Again it was rejected, the men still demanding the $3 basis, and all work at once ceased, the tonnage declining within three weeks to 16,038 tons per week.

While this state of affairs existed in Schuylkill, the work in the other counties was pushed to the utmost. The absence of Schuylkill coal from the market maintained prices through the summer at exceedingly profitable rates for the other fields, and it was demonstrated that in a short time, with such stimulation to development, the market could be supplied without her producing any.

Nothing else was done, except crimination and recrimination, until the 22d of July, the workmen, through the interposition of Mr. F. B. Gowen, president of the Reading Railroad Company, offering the following terms, which have been known as the "Gowen Compromise," viz:

Resolved, That we, the members of the Workingmen's Benevolent Association, do offer to our employers of Schuylkill county, to start on the basis of 1869, when coal is $3 per ton at Port Carbon.

Resolved, That when coal brings $3 25, we demand $8\frac{1}{4}$ per cent. of an advance; $3 50, $16\frac{1}{2}$ per cent. advance; $3 75, $24\frac{3}{4}$ per cent. of an advance; $4, 33 per cent. of an advance.

Resolved, That when coal falls below the basis of 1869, say $2 75, we accept a reduction of $8\frac{1}{4}$ per cent.: $2 50, $16\frac{1}{2}$ per cent.; $2 25, $24\frac{3}{4}$ per cent.; $2, 33 per cent., and nothing lower.

Resolved, That any miners working on contract after they start, earning over $100 per month, be reduced 10 per cent.; $125 and over, 20 per cent.; $150 and over, 30 per cent.; $200 and over per month, if there be any, 40 per cent.

Resolved, That the above figures be taken from the six grades of coal, pea coal not included.

Resolved, That the above resolutions be handed to F. B. Gowen, Esq., President of the Philadelphia and Reading Railroad Company.

This proposition from the men again broke the line of the operators' resolution, and a number of them having given orders to start their collieries under it, the Anthracite Board of Trade formally accepted it, but under strong protest against its justice. At the same time, the 29th of July, 1870, the executive committees of the Anthracite Board of Trade and

the Workingmen's Benevolent Association met at Pottsville, and signed the following agreement, as supplementary to and explanatory of the Gowen compromise:

"It is agreed that the Workingmen's Benevolent Association shall not sustain any man who is discharged for incompetency, bad workmanship, bad conduct, or other good causes, and that the operators shall not discharge any man or officer for action or duties imposed upon him by the Workingmen's Benevolent Association.

"It is further agreed, that the spirit and intention of the resolution, (called the equalization resolution,) passed by the Workingmen's Benevolent Association, is that each man shall work regularly, and it is the place of the bosses and operators to see that he does.

"The resolution is, that any miner earning above expenses over $100, and less than $125 per month, shall be reduced 10 per cent. on the basis; earning over $125 and under $150 per month, shall be reduced 20 per cent. on the basis; earning over $150 and under $200 per month, to be reduced 30 per cent. on the basis.

"For obtaining the prices of coal monthly, the president of the Anthracite Board of Trade, and the president of the Workingmen's Benevolent Association of Schuylkill county shall meet on the 20th of each month and select five operators, who shall, on the 25th instant following, produce a statement sworn or affirmed to, of the prices of coal at Port Carbon for all sizes above pea coal.

"The five operators shall be selected from a list of those shipping over 40,000 tons annually, and none shall be selected a second time until the list is exhausted.

"The price of coal so obtained shall fix the rates of wages for that month, and this agreement in regard to the mode of obtaining prices shall remain in force during the year 1870."

The equalization resolution contained in the foregoing proposition and explained in the supplementary agreement, was an answer of the W. B. A. to the assertions constantly being made of the extremely large earnings of miners by contract, and doubtless was intended, so far as it might do so, to limit production. On the part of the operators it was held that the difference between the earnings of average contract workers and wage workers was too great, and that if the contractors could be reduced to a reasonable extent, wages by the day could be advanced so as to give the wage-workers, particularly laborers, a better rate. It is not known that any miners were reduced under the equalization resolution, however, and it is still an unsolved problem whether the representation of the workmen was correct, that contract workers *did not* make such extraordinary earnings, or that of the operators that they did.

On the 1st of August the collieries got under way again, but it was almost immediately manifest that the long contest had ruined the business

of Schuylkill county. The enormous increase in the upper regions during the summer came so near supplying the market, and the consumers of Schuylkill coal being forced to get their supplies elsewhere, had so generally made arrangements they did not wish to break off, that the Schuylkill operators found themselves literally without customers and a market. In this condition of the trade the wages for the next five months were as follows: For August, 8¼ per cent. below the basis; September, 16½; October, 16½; November, 24¾, and December, 24¾c. Thus ended a most disastrous year for all interested in the trade—disaster wrought, most assuredly, by a passionate, tyrannical, pitiless determination on the one side to retain or recover an unwarrantable mastership, and on the other by an equally passionate resolution of defense that ran into an equally unwarrantable greed for triumph.

The question of suspension was agitated in Luzerne, Lackawanna, and Carbon counties, and meetings held, but suspension was voted down, and work continued with unusul activity during the long strike in Schuylkill.

A strike occurred at Jermyn colliery, Lackawanna county, May 17, in which the men demanded the discharge of the mine boss. The operator refused to comply. In a few days the men resumed work.

1871. The committees representing the Anthracite Board of Trade, and the Workingmen's Benevolent Association of Schuylkill county, met at Pottsville, November 7, 1870, to arrange a basis for 1871. Both parties signed an agreement to advocate the following terms, provided that satisfactory arrangements could be made with the railroad company for a reduction of tolls. The agreement was, "to commence with coal at $2 50 per ton at Port Carbon; outside wages to be $9 per week, inside wages $10, and miners by the day, $12 per week; contract work to be reduced sixteen and one half per cent. from the present basis; the reduction or addition of percentage to be graded on the new price thus formed, at the rate of one per cent. for each three cents advance or decline in coal."

Pending the consideration of this agreement, and before final action had been taken thereon, the operators of Scranton and vicinity (Lackawanna county,) notified their miners, December 3, 1870, that the price for mining would be reduced from $1 31 to eighty-six cents per car, being a reduction of forty-five cents per car, or thirty-four per cent. A large meeting of miners and laborers was held near Scranton, December 6, representing about twelve thousand persons, the object being to consider the reduction, and the advisability of suspension. Upon a vote being taken, sixty per cent. voted in favor of suspension. This was followed by a meeting of the General Council of the W. B. A., (attended by representatives from each of the anthracite counties,) at which a general suspension was ordered throughout the entire anthracite region, to take place on the 10th of January, 1871. At this meeting the delegates from Schuylkill voted no, but were outnumbered by the delegates from the other counties. Had the members of the W. B. A. of Schuylkill county cared as little for final results, and as much

for present advantage, as the upper regions had shown the year before' abundant opportunity was offered now, for them to avenge themselves on the men of the northern coal fields for their desertion of them at that time. But impressed with the urgent necessity of maintaining the organization intact, and perhaps influenced in some degree by a willingness to strike another blow at the authors of the proposition of December 29, 1869, upon a vote being taken by the districts in the county, a very large majority voted in favor of the old basis, and as a result, the council of Schuylkill county resolved, January 25, "to adhere to the $3 basis, if the men of the northern counties coöperated with them; if not, they would make the best terms they could."

The strike was inaugurated throughout the entire anthracite coal fields as ordered by the General Council of the W. B. A., January 10, and continued until May 22, when the men of Lackawanna and Luzerne counties went to work on the companies terms. Considerable lawlessness took place in the neighborhood of Scranton in the early part of April, necessitating the Governor to issue a proclamation and call out the military to suppress it. Violence had been committed upon a number who had gone to work at several mines, who were outrageously beaten, and driven away from their work. A few of the rioters were arrested.

The action of the Schuylkill men was vigorougly denounced by the operators of that region, in which the officers of the W. B. A. were attacked with the bitterest invective, charging them with all the opprobrious offenses that could be thought of. The result was that the discussion degenerated into a war of crimination and recrimination, which detracted from the real points at issue, and the situation settled down into a complete "dead-lock." The operators refused to recognize or negotiate through the officers of the W. B. A., and made a proposition to the men directly, over the heads of their selected men to attend all negotiations. This had the effect to close the doors to all treaty, for the men would only consider propositions coming through their regular officers. In consequence of which, the unity of the operators was again broken, and some of the collieries began to work on the basis of 1869, and one after another the number increased from week to week. At this time the management of the Philadelphia and Reading Railroad Company interfered with an extraordinary policy, that created intense excitement at the time, and led to what is known as the great coal investigation, before the judiciary committee of the State Senate. This was nothing more or less than to compel a settlement of all matters in dispute, and undertaking to regulate the trade and secure steadiness in its operations, by putting up the charges for transportation of coal, so that no collieries could work until all could work under a common agreement; the impression prevailing that the tolls would be increased from time to time, to just such an extent as was necessary to prevent shipping until such a settlement was reached. This was done, and a suspension of work that had been produced by a struggle between employer and employés was made

compulsory in its completness and continuance, by a power that neither could resist. The effect of this movement, on the part of the railroad company, was to stop all shipment *via* the Philadelphia and Reading railroad and its branches, and was extremely disastrous to all the interests involved. Many of the operators approved of the interference, while some denounced it with great bitterness. The workmen protested strenuously against it, and invoked legislative interference. The result of which was, that the judiciary committee of the Senate, after taking testimony largely, reported that in accordance with certain decisions of the Supreme Court, the Legislature had no power to apply a remedy.

In the meantime the discussion of the question at issued continued, and on all hands great anxiety was felt to find some means by which the "deadlock" could be broken and business again resume its course. The subject of arbitration had for some time received a good deal of attention, and now became a very prominent topic of discussion, " which resulted finally in the selection of arbitrators from both sides, for Carbon, Luzerne, Schuylkill, Columbia, and Northumberland counties, who met on the 17th of April, 1871, at Mauch Chunk, and chose Judge William Elwell, of Bloomsburg, for umpire, who attended their sessions in that capacity. E. W. Clark, on the part of the operators, and James Kealy, on the part of the workmen, formally presented their several claims and arguments in reference to the questions of interference with the works by the Workmen's Benevolent Association, and of discharging men for their connection with the W. B. A., by the operators. The arbitrators failing to agree, the subject was referred to the umpire, who, at the next session, (April 19,) gave his decision." In which he defined the " rights of the owners, or lessee, or operators to the entire and exclusive control and management of their works," and the " rights of the men to refuse to work, except upon such terms as shall be agreeable to them," but that they had no right to forbid others from working because they did not belong to a particular association; neither ought operators in any manner combine against persons who belong to the Miners' and Laborers' Association, nor deprive any member of work because of his selection by his branch to perform certain committee duties.

About the same time the manner in which the question of wages should be submitted to the umpire was agreed upon. The result of which was that the A. B. of T. and the M. and L. B. A. entered into articles of agreement on the 11th of May, in which they agreed to submit for the decision of the umpire the question of wages for Schuylkill county for the year 1871, as follows:

The operator's proposition as made in Philadelphia with basis at $2 50 at Port Carbon, with outside wages at $9, inside wages at $10, and miner's on day's work at $12 per week. Contract work to be reduced sixteen and a half per cent. from present rates. The advance or decline to be one cent for every three cents to be graded on the new prices thus formed, wages not to be less than would be paid with coal at $2 at Port Carbon.

The M. and L. B. A. proposed $3 at Port Carbon as the minimum, with wages as last year at that rate, viz: Outside wages, $11 per week; inside wages, $12; and miners on days' work, $14 per week; advance to be one per cent. for every three cents advance in the price of coal. These propositions were submitted to the umpire, and it was agreed that the men should resume work at all the collieries immediately, the wages to be paid in accordance with the decision of the umpire. After a careful consideration of the above propositions, the umpire decided, and established the basis and rates of wages below mentioned, as in his judgment just, both to the operators and the men in their employ.

Basis $2 75 at Port Carbon. Outside labor, $10; inside labor, $11; and miners by days' work, $13 per week. Contract work to be reduced ten per cent. upon the prices paid under the three dollar basis of 1869. Wages to be advanced one per cent for every three cents advance in the price of coal at Port Carbon above $2 75 per ton, and to decline at the same rate when coal is below that price down to $2 25 per ton.

The collieries all got under way, and there was general acquiescence in the justice of the award.

About the middle of May work became general, and continued, without interruption, until sometime in the month of September, at which time the loaders (inside laborers) of the Thomas Coal Company made a demand for an increase of wages equal to the basis rates for the year. This was a plain violation of the agreement, and, so far as is known, without excuse, yet that company not only acceded to it at once, but promised all the other workmen at the colliery that whatever the price of coal, and consequent wages, should be, they would at the end of the year make the wages for the whole time equal to the basis. This violation of the agreement by the men and operators at that colliery was followed by similar demands on the operators of other collieries, many of whom acceded rather than stop work, while others protested, and appealed to the officers of the W. B. A., but the break had become too general, and they had to confess that they could not control it. The result was that the operators had to yield, and agree that there should be no further reduction during the year. This action on the part of the workmen was regarded by many of them with a deep sense of shame and dread of its consequences, but the demand was yielded to so precipitately that the mischief was done before the better class could make their influence felt.

A meeting of delegates, representing four thousand coal miners of the Allegheny county river district, commonly called the Pittsburgh district, was held at the Black Bear Hotel, Pittsburgh, March 25, 1871, to take action with reference to what was claimed by them as the unsatisfactory method of weighing coal at the pits, and the screening of the same.

It was asserted that the screens in use were so large and open between the bar that an undue proportion of the coal passed through, for which

they were not remunerated, and, furthermore, that in weighing the coal, some exacted more pounds to the bushel than others, which created an agitation in favor of a reduction in the size of screens, and uniformity in the weight, each to be regulated by law. To this end, a committee was appointed to draft a bill, and present it to the Legislature then in session. A bill was prepared with a view to attain the object designated, but failed in its attempted passage through the Legislature.

1872. Notwithstanding the failure on the part of the men of Schuylkill county to keep faith under the terms fixed upon by Judge Elwell, the evident chagrin of a very large portion of the workmen, at what they regarded as the very first violation of good faith on their part, was so great that at the end of the year it was manifest that any attempt at a repetition would not be submitted to.

Therefore, on the 6th of January, 1872, the committees of the A. B. of T. and the W. B. A. met, and came to an amicable agreement for a basis for the year as follows, viz:

First. Wages to be fixed on a basis of $2 50 per ton for coal at Port Carbon, with outside labor at $10; inside labor, $11; and miners by days' work, $13 per week; and contract work at a reduction of eight and one third per cent. below the basis price at $2 75 for 1871.

Second. All advance and decline to be at the rate of one per cent. for every three cents advance or decline in the price of coal, with the understanding that when coal reaches $2 75 and upwards, the wages shall be the same as at the same prices of coal in 1871: *Provided*, That wages shall not be less than the $2 50 basis price for more than two months out of the year, and that those two months shall be between the 1st of April and December 31, and that in those two months the wages shall not be less than at a $2 25 rate.

Third. Prices shall be obtained from a list of all collieries shipping over the Philadelphia and Reading railroad over thirty thousand (30,000) tons in 1871, and none shall be chosen a second time until the list is exhausted. Five operators shall be chosen by lot from the list on the first of each month (if Sunday, then the day preceding) by four persons, two to be chosen by the A. B. of T., and two by the M. and L. B. A. The operators so chosen shall be required to forward to each side of the committee, chosen as above, on or before the tenth of the month, a statement of the average of all sales of coal (excepting pea coal) for the preceding month, calculated at Port Carbon. The committee shall meet on the tenth of the month, (or if Sunday, then the day preceding,) and announce by circular the average obtained from the statements so presented, and the wages for the current month shall be based upon the average so obtained.

For the month of January, it was agreed that wages should be paid on the $2 50 basis.

In order that no causes of dispute should remain, that could be guarded against, it was unanimously agreed by the two committees, that all com-

plaints about the unequal prices of powder and oil throughout the county, should be referred to the president of the A. B. of T., and president of the M. and L. B. A., whose duty it should be to investigate the matter, in person or by deputy, and endeavor to have it amicably arranged.

This year (1872) was about as full a year as to time of working as can be made. There was no general suspension, and fewer local stoppages from disputes than usual in Schuylkill county.

The arrangements for 1873 were arranged by the two organizations on substantially the same basis as the year previous, except that wages were not to go below the $2 50 basis.

On the 15th of March the Susquehanna Rolling-Mill Company of Columbia, Lancaster county, discharged one of their workmen for incompetency, and, in addition to his dismissal, he was charged with having wastefully consumed a considerable amount of fuel. This wastage was computed by the firm and deducted from his earnings. To this proceeding the men in general took exceptions and refused to work. The number engaged at the works were about 300, and after continuing the strike until April 1, they acquiesced in the action of the company, and resumed work.

On the 5th of June the employés of the several gas works of Philadelphia went on strike against several grievances, of which they complained. They were paid their wages monthly, and the gas superintendent was inflexible in carrying out this rule, unless in case of sickness or death. Up to the 4th instant the tools which the men used, such as shovels, rakes, etc., had always been furnished by the gas works, and no charges made upon the men for their wear and tear. On the 4th instant, when their wages were due, the superintendent stated that he would deduct the price of the tools used by each man from their wages. The average wages at the time was: Stokers $2 68, and helpers $2 56 per day. This the men thought too low; and when further reduced by the superintendent, in charging for the tools used, they determined to strike. They appointed a committee of four from each works, who were delegated to inform the proper authorities that they insisted that the conduct of the superintendent was unjust, and that they would not submit to it. They also demanded an increase of 15 per cent. on their present wages, and that the latter should be paid them every two weeks. If these terms were not complied with by five o'clock, 5th instant, it was determined to cease work.

These resolutions were presented to the board of trustees, who, in company with the chief engineer, escorted by a squad of police, went out to the works, at Twenty-third and Market streets, at five, P. M., 5th instant, and stated to the committee that they would yield to their demand for payment every two weeks, but no more. The police then refused to let the committee mingle again with the men, and, as a consequence, the result of the conference had to be called across the street to their fellow-workmen. The night force, upon hearing the news, refused to go to work, and, as a result, the city was thrown into darkness for several nights. The gas trus-

tees issued a call for 500 men, to which a large number responded, and were engaged. Quite a number of the police who had been stokers and helpers, were compelled by the mayor to go to work in the gas works and there instruct the new and inexperienced hands, by which means the works were soon in full operation and the strikers defeated and discharged.

During the early part of June strikes prevailed among a number of the trades in Philadelphia for a reduction of the hours of labor from ten to eight hours per day, but after about a week's idleness on the part of a number of trades, came to an unsuccessful end June 23, by all the men returning to work at the old wages and ten hours a day.

July 1 the employés of the lumber mills of Williamsport, Lycoming county, numbering about 1,500, went out on strike for a reduction of hours of labor to ten per day, having previously been working from twelve to thirteen hours for a day's work, and continued throughout the month. In the meantime one of the mills continued to work as usual without change in the time, and a few acceded to the reduction of hours. The strikers organized about the 8th instant and paraded the streets and visited Lock Haven, where they formed a league. On the 23d the strike assumed a serious phase, the strikers having assembled in the morning and marched to the upper mill yards. Police were drawn up in line at the Filbert & Otto mill, when the mob assailed them, breaking through their ranks and entered the mill. They proceeded to other mills and drove men from their work, who fled for their lives. Several fights took place and many were wounded, several of the police severely. They then proceeded to the lower mills and closed them. The military was called out, and paraded the streets, amidst great excitement. The riot excitement had abated by the 25th, but the strikers evinced a determination not to work unless their demand was acceded to; but by August 2 a majority of the mills had resumed operations upon the old time and conditions, when the troops were relieved.

On the 15th October the miners working on the line of the Connellsville railroad made a demand for an advance of one cent. per bushel for mining coal. Two firms acceded to the demand on the 19th, which stimulated a like demand at other works. At a meeting of the miners representing Allegheny county and surrounding districts, held on the 22d, at Miner's hall, Grant street, Pittsburgh, two thirds of the miners being represented. The following statement was caused to be published by them: "Heretofore four cents per bushel has been received for 'digging' coal, but now the demand is made for five." The price per bushel to be paid, however, was not their only grievance. It was alleged that miners were compelled to dig more than the regular seventy-six pounds for a bushel; that it varied from that figure up to as high as one hundred and ten pounds for a bushel. A conformity to seventy-six pounds, and a uniformity throughout the coal region, was more specially desired than an actual advance in price per bushel. Quite a number of mines were reported as having acceded to the demand, while others had refused. The demand at first was confined to work along

the line of railroads centering in Pittsburgh, but soon spread to the mines along the Monongahela and Youghiogheny rivers. The coal exchange, composed of operators along the line of the foregoing rivers, held a meeting on November 8, at the office of Hon. Joseph Walton, to consider the demands of the strikers, when, after a thorough discussion, a preamble and resolution was adopted unanimously, the import of which was that they refused to accede to the demands of the miners. The demand was generally acceded to by railroad mine operators, but steadily refused by the river operators, who succeeded in mining considerable coal at the old rate of four cents per bushel.

1873. January 14. A meeting of the miners composed of representatives of thirty works was held at Staley's hall, Pittsburgh. The object of the meeting was to urge the passage of a law by the Legislature regulating the size of screens and the measurement of cars, and also to provide adequate ventilation in the mines. After a protracted debate, a draft of a bill was agreed upon, and a committee appointed to visit Harrisburg and urge its passage. On February 7 the Pittsburgh Coal Exchange, and the Railroad Coal Producer's Exchange, met in joint convention to adopt measures in opposition to the foregoing bill, which was now known as "The Miner's Screen Bill," and a committee was chosen to visit Harrisburg and lay the objections of the operators to the passage of the bill before the Legislature. Upon the same day the miners held a meeting, and resolved to send a counter delegation to the same place. Both delegations appeared before the appropriate committees of the Legislature, and presented their views both for and against the bill. After quite a struggle, the bill was passed in a modified form, receiving subsequently the signature of Governor Hartranft, and was as follows:

SECTION 1. *Be it enacted, &c.*, That after the period of three months from the passage of this act, any miner employed by an individual, firm, or corporation for the purpose of mining coal, shall be entitled to receive, from his employer, and failing to receive, then to collect by due process of law, at such rates as may have been agreed upon between the employer and employed, full and exact wages accruing to him for the mining of all sizes of merchantable coal so mined by him, whether the same shall exist in the form of nut or lump coal; and in the adjudication of such wages, seventy-six pounds shall be deemed one bushel, and two thousand pounds, net, shall be deemed one ton of coal; that the provisions of this act shall only apply to the counties of Allegheny, Lawrence, Butler, Beaver, Mercer, Westmoreland, Fayette, and Washington: *Provided*, That nothing contained in this act shall be construed to prevent operators and miners contracting for any method of measuring and screening the coal mined by such miners as they may select.

SECTION 2. That at every bituminous coal mine in the counties aforesaid, where coal is mined by measurement, all cars filled by miners, or their laborers, shall be uniform in capacity at each mine; no unbranded car or

cars shall enter the mine for a longer period than three months without being branded by the sealer of weights and measures of the county wherein the mine is situated.

Section 3. That at every bituminous coal mine in the aforesaid counties, the miners shall have the right to employ a competent person as check-weighman, who shall be permitted, at all times, to be present at the weighing of coal. It shall be a further duty of said check-weighman to see that each miner is correctly credited with all merchantable coal mined by him. When differences arise between the check-weighman and the agent or owners of the mine, as to the uniformity, capacity, or correctness of the scales or cars used, the same shall be referred to the sealer of weights ard measures of the county where the mine is located, whose duty it shall be to regulate the same at once, and in the event of said scales and cars proving to be correct, then the party or parties applying for the testing thereof, to bear all costs and expenses thereof; but if not correct, then the owner or owners of said mine to pay the costs and charges of making said examination.

Approved—March 25, 1873.

On March 1st, the coal operators of Pittsburgh and vicinity held a meeting at the office of T. Fawcett & Son, the object of which was to bring about a uniformity of prices to be paid to miners, both on railroads and river mines. A resolution was adopted fixing the standard price at four cents per bushel at all mines, thus making the price paid for mining along the railroad uniform with the price paid along the rivers. It was agreed that this arrangement should take place not later than the coming 1st of April, and to that end the hearty coöperation of all operators was requested. The records of the time fail to show that this uniformity was secured, but, on the contrary, a division of prices seems to have continued to prevail, the railroad miners receiving more than those working at the river mines.

Matters continued in this way, without anything especial occurring, during the following two months. On the 14th of June, the miners of Allegheny county held a meeting, in the city of Pittsburgh, to make preparation to fix prices, if possible, under the prospective provision of the recent miners' act, and which virtually would go into effect on the 25th instant. During the meeting, they agreed upon a scale of prices, based upon the size of screens, and appointed a committee to meet the operators to arbitrate any differences that might arise. On the 25th, a monster demonstration was made in the city of Pittsburgh, in honor, and in favor of the miners' protection law. The column was in five divisions, and contained delegations from all the surrounding counties. There were eighteen hundred men in line, who proceeded to Ormsby Grove, where additional miners and their friends swelled the number to fully five thousand. Here a mass meeting organized, and addresses delivered by the Hon. John Latta and others. During the first week in July, the operators, taking advantage of the provisions of the law that authorized special agreements, notified the men that all contracts to be accepted must adhere to the old rates and methods of

screening. In the meantime, the miners' committee addressed a communication to the railroad and river coal exchange requesting a conference. This body at a meeting decided not to accede to the request. July 15th, the miners again assembled at Workingmen's Hall, Pittsburgh, to arrange a scale of prices, and to adopt measures with a view to bringing about a conference with the operators through which work might be regulated in accordance with the provisions of the act. They adopted a scale, and agreed to a resolution providing that in case of disagreement, to submit the entire question to a board of arbitration, consisting of one member to be appointed by the miners' organization, one by the Coal Operators' Exchange, and the third to be selected by these two, but who was to be a disinterested party, and then adjourned until the 23d. On that day they again assembled, and the first question was upon a reconsideration of the scale agreed to at the former meeting. After considerable discussion, it was agreed that the following revised scale should be presented by them to the operators for adoption:

All coal passing over a screen three fourths of an inch between the bars, $3 50 per one hundred bushels.

Over a screen one and a half inch between the bars, $4 00 per one hundred bushels for lump coal, and $2 00 per one hundred bushels for nut coal passing through.

On the same day, the Coal Exchange held a meeting at the office of Thomas Fawcett & Sons, and "*Resolved*, That the owner or owners of each coal mine would be ready at any time to meet the miners employed at their respective works, and that we regard seventy-six pounds to the bushel over a one and a half inch screen, twelve feet bar by five feet long, at four cents per bushel, as the standard measurement for coal."

The scale offered by the miners was accepted, after a short suspension, by railroad operators, but was steadily refused by the river men, although it is evident that some were paying prices objectionable to the mass of river operators, for at a meeting of Coal Exchange held at the office of Thomas Fawcett & Son, August 28, at which S. C. Risher presided, a resolution was adopted, that all coal merchants will refuse to send barges or boats to any works, the proprietors of which are paying advanced rates for mining coal, and a committee was appointed to confer with operators who were paying advanced rates, with a view to influencing them to cease operations for the present. They also adopted resolutions re-affirming their opposition to any change in the size of screen, and to a scale of prices. The strike, in a varied form, continued along the river during the following six weeks, when the miners began to exhibit a willingness to resume work at old prices and under the old system, and some were put to work. On the 28th of October, a meeting of the Coal Exchange was held, at which John F. Dravo, presided. Reports were there read from a number of operators, indicating that the miners were willing to work at the old prices. The action of the meeting, however, was to the effect, that the operators recognized the neces-

sity of a reduction in prices, and that they were unwilling to resume at old rates, and those who were operating at the old prices, were requested to cease. On November 3, a general meeting of miners was held in the city of Pittsburgh, to deliberate upon the situation. There was quite a division among the railroad miners as to the contribution of money to enable the river miners to continue the struggle, when, on motion of a river delegate, the following resolution was adopted: "That we, the miners of the Monongahela river, resume work at present at four cents per bushel of seventy-six pounds, over a fifty superficial feet one and a half inch screen." They agreed to resume on the tenth, and thus the strike and agitation for the time being ended.

About the middle of June, the Chinese employed at Beaver Falls Cutlery Works, Beaver county, went on strike for an increase from sixty to seventy-five cents per day. Ninety-nine of their number left for New Orleans and San Francisco. They accused their treasurer of withholding from six to eight dollars per month from the wages of each.

In the early part of November, the proprietors of several newspapers in the city of Pittsburgh, attempted a reduction in the wages of printers from forty-five to forty cents per thousand ems. The printers refused to accede to the reduction, and at a meeting of the Typographical Union, a resolution was adopted, providing, that in the event of any office being filled with non-union men and thus taking the control out of their hands, that they would at once inaugurate a strike on all the other papers. A few days afterwards the proprietors of the *Evening Leader* announced to the printers in their employ that they had decided to employ non-union men. The printers immediately ceased work, and adjourned to the street, where an impromptu meeting was held. Word was received that a similar movement had been inaugurated on the *Telegraph*, whereupon the union, in accordance with the resolution referred to, declared a strike on the *Commercial*, *Chronicle*, and *Dispatch*, papers under the control of the organization. Subsequently, prices were reduced, and the union virtually disbanded November 27. On the twenty-first the business managers of *Telegraph* and *Commercial*, together with one of the proprietors of the *Dispatch*, entered suit before Alderman Strain, charging seventy-three printers with conspiracy, and at a hearing on the twenty-eighth, the defendants were held in $700 bail to appear at court. The suits, however, were not pressed, and in due course of time were withdrawn.

The Pennsylvania Company, operating leased lines of Pennsylvania railroad west of Pittsburgh, notified their employés of a reduction in wages of ten per cent., to take effect on December 1. The men acceded to the reduction, but considerable dissatisfaction was manifested. A consultation of the engineers on the lines running west of Pittsburgh was held, when they concluded to demand a restoration of former prices, and if the demand was not complied with, to go upon a strike on the 26th of December. The demand not being complied with, the engineers left their stations on the

day fixed, and in consequence, none but passenger trains were run on the day succeeding, the strike extending over the line to Chicago. A meeting was held in Allegheny city the following day, when it was resolved not to resume work under any arrangement other than that that had been formerly agreed upon. A committee of two was appointed to confer with the company. On the 28th, the engineers of the Pennsylvania railroad held a meeting on Penn avenue and Twenty-second street, Pittsburgh. It was also reported that similar meetings were held on the other divisions, at which committees were appointed to confer with authorities in Philadelphia, relative to the reduction. The week following they came to an amicable understanding, and the engineers continued work at the reduction.

On the 24th of November, the miners at Arnot, Tioga county, held a public meeting, at which it was determined to organize a Miners' Union, similar to that in the anthracite region. Eight of the most prominent men engaged in the proceedings were immediately discharged. The miners at once quit work, until these men were re-instated. The following day the president of the company visited the mines, and called the men—about two hundred—together, and asked them what were their grievances. They complained of short weight. He then assured them that if there was any thing wrong, it should be rectified, but that the company would not tolerate a Union, nor a member thereof, on the premises; that all such could consider themselves discharged; that they would pay them all wages due, so that they could promptly go elsewhere. It appears that the men employed at the mines at Arnot, Morris Run, Fall Brook, and Antrim, felt themselves aggrieved against a number of arbitrary rules that was enforced upon them by the companies, and thought that the only way to seek redress against the wrongs imposed, was by organized union, and then to stand as a unit in each others' defense. The companies had been accustomed to impose arbitrary fines upon their workmen for drunkenness, or any acts which the superintendents or managers adjudged a misdemeanor, and withholding the amount out of their wages. The companies being the owners of all the property, they were practically the rulers of all the social affairs of their employés and families, as well as at their works. Their authority was absolute in the management of borough or township affairs. The men felt they were powerless to act in resisting wrong, unless they were united, and accordingly an organization was formed. There was no trouble pending at the time, nor any dispute about wages, but the fact of their organizing a Union seemed to warn the several companies that to avoid future trouble, it was necessary to nip the pending evil in the bud. They therefore issued December 11, 1873, the following notice:

"Notice is hereby given, that on Sataurday, the 13th instant, this company will pay all their miners for September, who do not belong to the Miners' Union, proposed in Tioga county, Pennsylvania, and who pledge themselves not to join the same. Also, that we will pay up all miners who do belong to the said Union in full, as soon as they are ready to settle their accounts, and vacate our houses.

"All miners employed by this company will be expected to give satisfactory replies to the following questions:

"*First.* Are you a member of the Union of miners proposed in Tioga county, Pennsylvania, or any society of a similar character?

"If the party is not a member, then he will be asked,

"*Second.* Are you willing, and do you pledge yourself not to join any such society?

"If the party is a member, he will be asked,

"*Third.* Are you willing, and do you pledge yourself to dissolve your connection with such society without delay, and not join in the same again?

"The companies will protect all men working for them from violence."

The men requested the managers to withdraw the notice, but their request was not complied with. They continued to work, however, until Saturday, 13th instant, when a mass meeting was called, to consider what course to pursue; at which they decided to ignore the notice and go to work on Monday as usual, which they did, but were met by the managers, who told them "that all who would not answer, to the satisfaction of the company, the questions contained in the notice, must square up their work and quit." Notices to surrender the houses within ten days were immediately served upon all who refused to work, in accordance with a lease that the workmen were required to sign. As a result, a "lock-out" was inaugurated. On the 23d of December, an attaché of the Bureau visited the locality, in the capacity of deputy commissioner, to ascertain, by personal observation and inquiry, what were the real facts. In the course of a conversation with one of the superintendents the following proposition was suggested:

"*First.* The companies to withdraw the objectionable notices, not as a concession to the men, but distinctly because they had no right to put them up; and for the same reason they shall cease to obstruct the workmen's organization.

"*Second.* The companies to agree that no man shall be discharged or put to disadvantage in his work, because of anything he had lawfully done in promoting the organization of the union.

"*Third.* The men to withdraw all charges of grievances that have heretofore been made; and the two parties mutually take a new departure; all grievances and differences of the past to be regarded as though they had never occurred.

"*Fourth.* On the part of the members of the union, they want it to be clearly understood, that they have no right to force the inclination of any man in the matter of joining the union. That such men have the same right to work, and the companies to employ them, as those who belong to the union. That members of the union are bound to see that such persons are not molested in the work or elsewhere, because of their not being union men. And that workmen have no right to commit any acts that interfere with the free and exclusive, lawful, and just management of the collieries

and their business affairs by the companies, and that any such acts should be held to be and punished as conspiracy.

"*Fifth.* When any workman in the future has any complaint to make or grievance to be redressed, he shall apply first to the foreman or boss who is immediately over him; whose duty it shall be to give him redress if his complaint is just. If he neglects or refuses to do so, the person aggrieved shall apply to his proper branch or district association, who shall, through the proper committee, inquire as to the reasonableness of the complaint; if they find it trivial or unreasonable they shall so report to the branch or district, who shall thereupon require the complainant to proceed with his work quietly and peaceably, or leave it in the manner for some one else to do. If, however, they find the complaint to be just, they shall apply to the agent or manager; and then it shall be his duty to give them fair hearing, and if he is satisfied with the justness of the demand, give prompt redress.

"*Sixth.* If, however, the two parties cannot agree, they shall together select some disinterested person, in whom they have both confidence, to act as arbitrator, and both shall be bound by his decision, given after full and fair hearing. If they cannot agree upon a person for arbitrator, they shall each select one, and these two shall select a third, the three constituting a board of arbitration, and the judgment of all, or a majority, shall be binding on both sides."

The superintendent declined to accept this proposition as a basis settlement on the ground that the policy of the company had been fixed. At the request of the workman the proposition was written, and was adopted by them as their proposal to their employers, and so published. On the 31st of January, 1874, a delegation of the workmen of Tioga county had an interview with the Governor and Attorney General, at which they presented a petition signed by two thousand five hundred and seventy-seven citizens of that county, among them a large number of the most prominent men (business and otherwise) of the county, praying the State authorities should interfere to secure the execution of the laws and the protection of the people from the oppressions that would ensue if the provisions of the tenant leases were arbitrarily enforced. The delegates were assured that whatever was in the power of the law to do should be done. An eminent lawyer was retained by their sympathizers, being resolved that if the companies persisted in their course to make the case a test to determine where the rights and powers of employers end, and those of the workman begin. The struggle continued until the 3d of March, 1874, when at a conference between a committee of the men and the companies, the latter declared their willingness to withdraw the notice issued December 11, and the men resumed work unconditionally so far as the organization was concerned.

1874. January 11 the miners of Schuylkill county refused the proposition to reduce wages on schedule fixing $2 25 as a basis, and nine thousand men were thrown idle. There were very few collieries operated during the month of January.

A strike took place among the employés of the Erie railroad at Susquehanna Depot, Susquehanna county, on Monday, March 2. The railroad company failed to make regular pay days for several months, keeping the men from a month to six weeks without their earnings. For the month of October, 1873, they were paid December 2, and on January 15, 1874, they received their November earnings, and their December earnings were paid them February 7. The men demanded a regular pay day. After being out about six hours their request was granted, and the company, through their general supervisor of motive power, signed an agreement to the effect that they would pay the hands on or before the 15th of each month for all labor performed in the month preceding. On the 3d, or next day, as per agreement, the paymaster arrived and commenced paying for January and finished paying in four days. On the 15th the men were asked to have the day of payment postponed until the 25th, for the reason that the auditor had resigned and they could not have their warrants ready before that time, to which request the men cheerfully complied. On the 24th the supervisor caused a notice to be posted on the bulletin board in the shops to the effect that the shopmen having been paid first last month, they would have to wait until the men on the road were paid for January, before the men in the shops would receive their pay for February, as to the date, they could not tell them exactly when they could pay them. This breach of faith on the part of the company, after signing an agreement but a few days before to pay on the 15th of each month, incensed the men. They had been working only three fourth time all the winter, and to have it withheld for so long a period they felt to be very inconvenient; besides they felt no security in their positions. On Wednesday, March 25, the men all stopped work and placed strong guards around the shops to protect the company's property. They stopped the freight trains by removing parts of the engines, disabling thus forty-five locomotives. On the 27th passenger trains were not allowed to run. The strikers attached an engine to the mail car to prevent the delay of mails. They claimed that if the company had a right to keep their money one month, they had an equal right to stop the company's trains until they were paid. On the 30th the vice president of the company had a conference with a committee of the strikers and submitted the following propositions: All trains to run without interference from the men as soon as they could be got ready; the paymaster to pay off all men for February and March, beginning on the 31st instant; all of the men when paid off to be considered out of the company's employ; the company will reëmploy all such men as they think are for their interest, the men to pledge themselves not to interfere with the cars, trains, shops, or other property, in any respect; if no interference or intimidation is hereafter attempted with the employés or property of the company, and all parts of machinery are at once replaced, the company will seek to make no arrests for anything done during the strike.

The men received their pay as per proposition, and about 450 went to

work on April 1, and about 400 more on the day following, leaving about 150 out of work, some of whom did not present themselves, but quietly left the place, while others were rejected. The committee, without exception, were refused employment.

On July 1, 1874, about 250 employés of the Pennsylvania Steel Works, Harrisburg, went out on strike against a reduction of from ten to twenty-five per cent. in their wages. There was no reduction in the wages of machinists, and only a slight reduction was made on blacksmith's wages, who continued work, in conjunction with the laborers, making necessary repairs. The bessemer, rail, and hammer departments were idle. The bessemer department submitted to the reduction, and went to work on the 4th instant. Other employés followed, and, as a consequence, all were at work on the company's terms on the 11th instant.

July 6, the journeymen gold-beaters of Philadelphia inaugurated a strike against a proposed reduction of ten per cent. in their wages, without notice, which terminated successfully to the strikers, who went to work on the 22d instant, at the old rates.

Early in the month of September a strike took place along the line of railroads leading into Pittsburgh, against a proposed reduction of wages for mining coal. During the month a body, numbering several hundred newly-arrived Italians, were employed to take the place of the strikers, by the operators along the line of the Pan Handle railroad. The introduction of this class of labor engendered bad feeling, accompanied with several outbreaks. The latter part of October, a number of additional Italian miners were secured and employed at Osceolo, on the line of the Connellsville railroad, which caused much indignation among the striking miners, and fearing an outbreak, a detachment of police was secured to preserve the peace. For several succeeding days there was great apprehension among the citizens of Buena Vista that there would be bloodshed. Shots were exchanged between strikers and Italians, and, as a matter of safety, the citizens called upon the sheriffs of Westmoreland and Allegheny for aid, the latter appealing to the Governor. Peace, however, for the time, was restored; but in a few days trouble was again renewed, and the sheriff of Allegheny county responded to the emergency with a posse of men. No violent out-break occurred, but shots were frequently heard, and the situation continued somewhat critical until the 1st of December, when the Italians folded their tents and departed from that vicinity, some settling along the line of the "Pan Handle," and others scattering for points further west. The strike and difficulty continued along the other road until the 1st of March, 1875, when the miners yielded and resumed work at three cents per bushel.

During the financial troubles of the fall of 1873, the Lancaster Manufacturing Company commenced paying their employés in scrip, redeemable by the company at the expiration of six months, with six per cent. per annum; and as money was scarce and stores were willing to accept it at a small rate of discount, the men accepted the scrip and continued to work.

Until the beginning of September, 1874, the notes were redeemed at maturity, but before the middle of the month some of the notes were "postponed" by the company, and, in consequence, several of the storekeepers refused to accept any more of them. The employés had been grumbling for months previous, many of them claiming that they were compelled to suffer a discount of 12 and 15 per cent., but not until the stores refused to receive the paper did the men take a decided stand in the matter. The machinists and blacksmiths gave one week's notice that they would cease work unless the practice of paying scrip was discontinued; the notice having expired a number quit work on the 16th of September. The puddlers continued to work, but threatened to strike if they were not paid cash in future. No record of the result.

About the middle of November, a strike occurred at Fairlawn colliery, Scranton, on account of the number of cars for a day's work. The company demanded six cars, while the men were only willing to fill five. On the 18th a man took the contract, and proceeded with a gang he had engaged, to occupy the places of the regular miners to work upon the company's terms. When they came out in the evening they were hooted and stoned by the crowd that had collected, but no one was seriously injured. The next day the deputy sheriff, at the request of the company, accompanied the new gang to their work. They were again assailed, the throwing of stones and clubs continuing for some distance, when in the vicinity of Gibson street, a man in the crowd discharged a blunderbuss at the miners. The new men—who were in wagons—drew revolvers and fired a volley of some six shots or more into the multitude. Stones and other missiles were hurled back at the party in the wagon, striking some of the men, but none were seriously injured. Rioting continued the next day, men being stoned and clubbed. The new men determinedly continued to work, and as a means of defense were armed with Sharpe's rifles. A large meeting of the miners was held on the 21st, when they resolved to discontinue the struggle, after which date the new men were not molested, and peace was fully restored.

The iron manufacturers of Pittsburgh and vicinity, owing to the rapid decline in the price of iron, desired to re-adjust the basis of the scale of prices paid to the boilers, since the agreement entered into July 23, 1867. Accordingly a delegation of manufacturers met a like delegation of boilers in conference, on the 7th of November, 1874, where they gave the required thirty days' notice to terminate the agreement, and proposed that the committees, in the meantime, should arrange a new, or modified, scale upon a lower basis. The proposition of the manufacturers was to reduce the price of boiling from $6 to $5 per ton, on a three cent card, or selling price of iron, and, furthermore, when the price of iron declined to $2\frac{1}{2}$ cents per pound, the price of boiling should be $4 50 per ton. Should iron advance beyond three cents then the price paid boilers would be as heretofore. To this the boilers would not agree, neither would they, at that meeting, submit any proposition. The thirty days' notice would expire on the 7th of

December; in the meantime, however, several conference meetings were held, at one of which the boilers proposed to accept a reduction of 50 cents per ton when iron sold at 3 cents, but would make no further concessions in the event of iron falling below that figure. To this the manufacturers would not consent, and accordingly closed their puddle mills December 7. Thus was inaugurated a "lock-out" which extended to the 15th of April, 1875. On the 12th of March the manufacturers proposed a settlement by arbitration, but the men positively refused to acquiesce to such a proceeding. On the 4th of March the Pittsburgh Bolt Company started their puddling department with quite a number of colored workmen, whom they had secured in Richmond, Va. This caused some consternation among the men on strike, and they gathered about the works in large numbers, some of the more indiscreet making use of threats of a violent nature. Observing the strikers lingering in large numbers, some of the rollers and others at work became alarmed, and informed the company that they feared a raid would be made on the mill, and thus they were in danger of injury. Fearing trouble, word was sent to the Sheriff, who, in company with General Pearson, visited the ground. They found quite a large crowd gathered in the vicinity of the works, whom Sheriff Hare, in the name of the county, ordered to disperse. The authorities deemed it advisable to have the troops in readiness, in case of emergency, and, accordingly, Colonel P. N. Guthrie issued an order to the second company of the Eighteenth regiment of Fourth brigade, Sixth division, National Guard, to assemble in their armory fully equipped, there to remain until further orders. The Sheriff telegraphed to the Governor that a riot was imminent, and asked that General Pearson be ordered to hold two companies in readiness, to be brought into service immediately if wanted. The Governor replied that the militia should not be called out until the power of the civil authorities had been expended, when the company that had been ordered to the armory was disbanded. The works were guarded for a few days by the sheriff, aided by the police, but no attempted interference was offered by the "strikers." On April 7 the Keystone Rolling Mill started up, paying the old rates, and agreeing to the scale demanded by the boilers. Their action was followed in a few days by others, when, at a meeting of the manufacturers, held on the 15th of April, they adopted the following resolutions:

WHEREAS, In December last, the iron manufacturers of Pittsburgh and vicinity made a demand upon their boilers for a reduction in the price of boiling to $5 per ton on a three cent card, and $4 50 on a two and a cent card, until such time as the price of manufactured iron should advance to over three cent card, when the old scale should be restored, which demand was rejected by the boilers, and a strike ensued, which has continued to the present time:

And whereas, The reason given by the manufacturers for making such demand was their inability to pay anything more on the price of iron that was current at that time, without entailed loss upon themselves:

And whereas, There has been no visible improvement in the price of manufactured iron up to the present time, nor visible improvement of any kind in the situtions, and the representations made to our boilers in our conferences with them just previous to the strike, and which we believe to be *strictly true*, apply with equal force to the present time and situation; yet some of the firms which have heretofore acted with us in our efforts to reduce the price of boiling to a fair and equitable figure on the present price of iron, for reasons known only to themselves, have withdrawn their coöperation, and have started their mills at $5 50 per ton; therefore, be it

Resolved, That in view of their action, and the fact that western mills are running and taking the trade which largely belongs to Pittsburgh, we deem it inexpedient to longer continue the suspension of our mills, and that we all, or as many of us as desire, resume work at $5 50 per ton.

This action on the part of the manufacturers virtually ended the conflict, but divided the action of each, for heretofore a general committee had arranged and signed a scale binding upon all, whereas now, each firm was free to sign, or otherwise, as they, in their judgment, thought proper. The puddlers, however, clung to the scale, and would not resume unless the signatures of the firms were attached, a duty which the various local committees attended to promptly, and which in time was acquiesced in by all. This scale based the price of boiling at $5 50 per ton, when iron sold at two and a half cents per pound, advancing ten cents per ton for boiling for each advance of one tenth of a cent per pound in the price of iron, until reaching five and five tenths cents, when boiling would be $8 50 per ton.

1875. A strike, of several months' duration, of the puddlers employed at Atkins Brothers' Rolling-Mill, Pottsville, against a reduction of wages, terminated January 5, 1875, the men compromising to work on same terms as Allentown, Bethlehem, and Harrisburg. The prices paid at Harrisburg for puddling, December 23, 1874, was from $4 10 to $4 50 per ton, they having recently accepted a reduction of ninety cents per ton.

On April 1, the puddlers at Allentown, who were notified by their employers that they would be reduced, from date, to $3 80 per ton, went on strike, but the company immediately issued a notice that the old rate, $4 per ton, would be paid, if the men desired to work. The men made an effort to have a sliding scale adopted, but finally accepted the employer's offer, and resumed work.

On the 10th of April a strike of considerable magnitude was inaugurated throughout the Clearfield coal district, on the part of the miners, who made a demand for an advance in their wages of ten cents per ton. The strike was conducted under the auspices of the Miner's Union, whose local officials were aided in the management of the strike by others, who held prominent positions in the organization, both east and west. In a newspaper communication of those times, a "miner" states that the strike

originated by the refusal of the operators to restore the old price of sixty cents per ton, they having accepted a reduction of ten cents the previous year, upon a promise that it would be returned them when the coal trade would justify it, and in their opinion that time had now arrived, as they asserted that the market price of coal had advanced. In this communication he states, "that a miner could dig in a day of ten hours five tons of coal, making his wages $2 50, less seventy-five cents for three pounds of powder, and twelve cents for oil, making actual earnings $1 63, out of which $1 per month is deducted for blacksmithing." In addition, it was asserted that for domestic use he was required "to pay $2 per ton fuel, and accept a great part of his pay in store goods." After ten days' idleness, quite a number of the miners along the Moshannon branch consented to resume work at the old rates, as did a few of those who had been at work at the Powelton mines, on the Tyrone and Clearfield railroad. Their resumption caused considerable commotion, and fearing trouble, a special police force was secured for their protection. Finding, after two or three weeks' suspension, that there was no early prospect of the miners giving way, the operators concluded to employ new hands, and to that end secured agents, who were deputized to employ such men as desired to accept work at the prices offered.

On the 10th and 11th of May a large force was taken up from Huntingdon by several operators, thoroughly equipped and provisioned, to commence operations in Excelsior and Ocean collieries, but many of the first lot were intimidated, and returned. The strikers were holding a mass meeting on the 12th, when it was announced that three car-loads of so-called "black legs" had arrived. The meeting broke up in confusion, and about nine hundred men and women repaired to Fisher & Whitehead's mines, who forbid them coming on their property. The mob halted and sent a delegation to confer with Fisher & Whitehead, and asking permission for a committee to go and confer with the men. The request was granted, and the committee, after several attempts, failed to persuade a single man to return. The mob then fell back for consultation. Finding the new men could not be persuaded to leave, they became impatient, and acting under the imprudent impulse of the moment, made a wild and furious charge upon them, sweeping over Mr. Fisher and his party. Men and women forcibly entered the houses, dragged the men therefrom, threw their baggage out of the windows, and took possession of their provisions. Those who had been working in the mines for weeks were compelled to come out, and surrounded by the mob, started for Tyrone.

The strikers became wild and ungovernable, and threatened to clean out every bank operated. About seventy men were working in the Morrisville mines, and thirty-five at Powelton, whom the strikers appealed to quit, threatening them if they did not. Fifty men were at work at the Sterling mines, where a few policemen were on guard, and between whom and the strikers a fight occurred, about noon of the 14th, resulting in two of the latter being arrested. L. S. Coutri, editor of the *L'Italia*, was active in

procuring new hands, and on the 14th was at Tyrone with forty of his countrymen on their way to the mines, ready to go to work if afforded proper protection. Three days afterwards the sheriff escorted a squad of Germans from Tyrone to the Franklin mines to go to work. Through the vigilance of the sheriff and special police, and the protection by them afforded, the mines were gradually filled by new men, the operators refusing to hold any communication with the miners whatever. The sheriff issued a proclamation warning all against any disturbance of the peace, expressing his determination to protect the people in the exercise of their rights. On the 17th fifty-six strikers were arrested at Osceola and taken to Clearfield jail, charged with intimidating by threats and otherwise those who were at work. On the 19th the officials of the miners admitted their inability to further maintain the struggle, and, as a result, the strike was virtually at an end. New men were employed without the slightest molestation, while the old hands were charging each other with bad faith and mismanagement. By the 1st or 5th of June all were ready and willing to resume work at the old rates, but they were confronted by a new demand, which required each one to sign an agreement binding himself not to belong to any Union, nor to thereafter engage in any strike. The majority complied, and those who did not gathered their tools and departed for other sections. Of those arrested, thirty-six were tried and convicted for conspiracy and riot. Judge Orvis divided them into three classes, the first he sentenced to pay a fine of twenty-five dollars, cost of prosecution, and undergo an imprisonment of one year; the second to a like fine, with costs of prosecution and sixty days' imprisonment, while the sentence on the third class was suspended, as it was thought that they were controlled exclusively by the leaders. The trial of Xingo Parks and John Siney, two of the most prominent miners in Pennsylvania, attracted universal attention. They were indicted for conspiracy and inciting riots. Some of the most eminent attorneys in the country appeared for and against them. Siney was acquitted, while Parks was convicted and sentenced, October 7th, to pay a fine of one dollar, costs of prosecution, and undergo an imprisonment in the Western Penitentiary for one year. He was pardoned December 21, 1875, by Governor Hartranft, upon the recommendation of the Board of Pardons.

May 10, the puddlers of the Chesapeake Nail Works, Harrisburg, went on a strike, demanding an advance of $1 per ton, from $4 50 to $5 50. The rate paid, ($4 50,) was twenty-five cents higher than Reading, fifteen cents higher than at Pottstown, and forty cents more than was paid at Birdsboro', while the price paid at Conshohocken was $5, Lehigh region $5 25, and Philadelphia $5 75 per ton. The puddlers resumed work June 3, on an advance of fifty cents per ton, making $5. They were subsequently reduced to their original price, $4 50, and a further reduction to $4 per ton was peaceably accepted November 29.

Cosiderable agitation was manifested in the Lackawanna and Luzerne

coal regions, from the 15th of March to the 15th of April, by an effort on the part of the miners and other employés, to obtain the restoration of the ten per cent. which had been taken from them some time previous. Delegates from the Schuylkill district visit the Lackawanna region, with a view to induce them to strike. A large meeting was held at Hyde Park, and upon a vote being taken, one thousand five hundred and twelve voted for work, and three hundred and nineteen against, thus deciding against a strike.

March 20. The engineers and pumpmen of the Delaware, Lackawanna and Western Railroad Company went on strike in the Lackawanna region upon the refusal of the company to restore the ten per cent. which was taken off their wages in January. They resumed work on the twenty-fourth instant at the old rates.

The new men, who had taken the places of the miners who were on strike at Fairlawn Colliery, Scranton, on contract November, 1874, inaugurated a strike of their own May 20, 1875, demanding an advance of ten per cent. The old workmen were in high glee over this turn of affairs, and embracing the opportunity, applied for their former positions, which were given to them; they went to work at the former wages.

The price of iron having greatly depreciated, the manufacturers of Pittsburgh were unable to pay the prices demanded by the scale fixed by the boilers in the preceding April, accordingly about the middle of October, 1875, they notified the men that the scale must be set aside, if work was to continue, and wages reduced. They demanded a reduction from $5 50 to $4 50 per ton, which was refused, but a temporary compromise was affected by fixing the price at $5 per ton. The continued depression, however, compelled manufacturers to insist upon a further reduction, and gave thirty days' notice to that effect, which, being stubbornly resisted by the men, caused grave apprehension of another general strike. On the 11th day of December, however, an agreement was entered into by the respective committees, as follows: "On and after Monday, December 13, the price for boiling shall be $4 75 per ton. It is understood, however, that any mill whose notice does not expire, shall continue to pay $5 until the expiration of the agreed thirty days. That the conference adjourn to meet at the call of either chairman." No further controversy occurred until the

1876. succeeding May. When the committees again convened to deliberate upon a scale of prices, the boilers submitting a scale based upon iron at two and one half cents, boiling to be $5 per ton, to advance ten cents per ton for every one tenth of a cent a pound of advance in the selling price of iron. To this the manufacturers demurred, when the boilers notified them that unless agreed to by the 31st of May, they would strike. The notice having expired and the manufacturers still refusing, a strike was inaugurated in all the mills. After the expiration of two weeks, a number of firms succumbed, signed the scale, and lighted up their mills, they were soon followed by the others, and the strike was ended. The scale agreed upon was to be in force for one year.

The miners at Brisbin shaft, Scranton, reduced the wages of their laborers twelve cents a day—of six cars. The laborers went on strike May 19th against the reduction. Other laborers were employed next day to fill their places, which caused great excitement, resulting in some violence. The trouble, however, was of short duration, as some of the officers of the company called a meeting of the miners and laborers on the 20th, and, after negotiations on both sides, the matter was amicably settled.

The general dulness of trade that pervaded the entire country in the fall of 1875 and spring of 1876 was in no section more keenly felt than in the anthracite regions of Pennsylvania. The meager demand had brought the coal trade to its lowest point, the output being very small, and, owing to competition, reduced to the lowest prices. As a consequence, reduction in wages seemed unavoidable, not only in the mining of coal, but also among those who were employed upon the various lines of railroad in its transportation, as well as those who were in the various car-building and constructing departments. These reductions were repeated, and at times carried considerable consternation and excitement among the employés; but, owing to the exigencies of the times, were generally submitted to. Early in October, 1876, the car men and mechanics of the Delaware, Lackawanna and Western Railroad Company, in Scranton, were reduced ten per cent. Against this reduction the men rebelled, and, as a result, about one thousand of them refused to work. They held a meeting, and appointed a committee to address a communication to the company, requesting a withdrawal of the order for a reduction, and agreed that they would not return to their work until a favorable response was received. Quite a number, however, relented, and went to work again upon the company's terms, but a large proportion remained steadfast in their purpose not to work at the reduced prices. Thus matters continued for several weeks, much ill-feeling, in the meantime, being engendered between those who had returned to work and those who refused, and who were still idle. On the 25th of November, an altercation took place between the strikers and those who were at work. The latter were assailed by the former in considerable numbers, and for a time matters assumed quite a serious aspect. Several men were seriously injured by being struck with stones and other missiles, and while the foreman of one of the shops was being closely pursued he drew a revolver and fired at his assailants, which had the effect of dispersing them. Shortly after, the police arrived, who soon succeeded in restoring peace. The following day several of the rioters were arrested, and held to bail for trial at court, and the strike virtually ended.

1877. On January 2 a general strike occurred among the miners along the A. V. R. R. and Pan Handle R. R., Pittsburgh district, for an advance in the price of digging coal to three and one half cents per bushel. In a few days the matter was compromised by the operators conceding three cents per bushel.

On the 15th of March the engineers and firemen of the Philadelphia and

Reading Railroad, through a committee, addressed a written communication to the General Manager, requesting an advance of 20 per cent. in their wages, to take effect upon April 1. The manager stated that a written answer would be given, and inquired if, in the event of a refusal, they would quit work, to which they replied that "they were not authorized to answer that question." This answer led to the conviction, upon the part of the railroad authorities, that their employés were, in large numbers, members of the organization known as the "Brotherhood of Locomotive Engineers," and, as they were strenuously opposed to being controlled by that body, they resolved upon measures giving their employés the alternative of severing their connection with the organization, or cease being in the employ of the company. To that end the following circular was addressed to the committee:

"*March 27, 1877.*

"*To* Messrs. W. H. PARKER, W. J. SWEIGARD, and others:

"GENTLEMEN: With reference to your letter of March 15, asking for an advance of 20 per cent. upon the wages of engineers and fireman, I have to say that having had some intimation that officers of the association known as the Brotherhood of Locomotive Engineers, contemplate making an attack upon us, somewhat similar to those recently made upon the Central Railroad of New Jersey, and Boston and Maine Railroad, I must decline further recognition of you as a committee until assured that you are not acting as such in the movement above referred to.

"Respectfully yours,

"J. E. WOOTTEN,
"*General Manager.*"

Subsequently the following circular was issued:

"PHILADELPHIA AND READING R. R. CO.,
"GENERAL OFFICE,
"*March 27, 1877.*

"Mr. . . . . ,
"*Locomotive Engineer:*

"DEAR SIR: In view of the recent high-handed interference with the business of railroad companies, and the serious, and sometimes fatal, consequences that have resulted to the innocent traveling public from the unjustifiable and arbitrary conduct of the organization, known as the Brotherhood of Locomotive Engineers, upon other railroads, it has been deemed unadvisable to retain in the employment of this company any one who is a member of that organization.

If you are in such membership you will be called upon in a day or two to decide whether you desire to remain in the employment of the company, by complying with the regulation requiring you to withdraw from the association referred to.

"It is not the desire of the company to deprive its employés of any of the beneficial or life insurance features of the society of the Brotherhood of Locomotive Engineers, without offering in their stead, greater benefits of a similar character, and it is therefore proposed by the company, to establish and endow a life and accident insurance fund, upon payment of a monthly sum less than previously paid, will receive in case of accident or death, greater benefits than those heretofore derived from the Brotherhood of Locomotive Engineers.

"Upon being informed of your desire to continue in the employment of the company, the undersigned will be pleased to give you any information you may desire as to the details of the beneficial fund, and to discuss with you directly, any question involving your relations with the company.

"Respectfully yours,

"J. E. Wootten,

"*General Manager.*"

Almost immediately following the promulgation of the above circular, a few of the prominent members of the association quit their places. After the lapse of about a week, a dozen or more others stepped down from their engines, which had a tendency to incite others to do likewise. On the afternoon of April 13, the grievance committee of the Brotherhood addressed the following to the general managers:

Philadelphia, *April 13, 1877.*

J. E. Wootten, Esq., *General Manager, P. and R. R. R. Co.:*

Dear Sir: We, the undersigned committee, representing the locomotive engineers on the Philadelphia and Reading railroad and leased lines, did hold a meeting at the Merchants' hotel, on the above date, where the following preamble and resolutions were unanimously adopted:

Whereas, On March 27, the Philadelphia and Reading Railroad Company, did, by its president and general manager, caused to be printed circulars, which were served upon the engineers, members of the Brotherhood of Engineers, the purport of said circular being that they should renounce their allegiance to the organization, or be compelled to leave their situations; therefore,

Resolved, That we, the grievance committee, wait upon J. E. Wootten, Esq., for the purpose of expressing to him, that said circular is antagonistic to the fundamental principles of our order, and also as uncalled for as it is unjust, and that we will not accede to its demands in which action we express the unanimous desire of engineers and firemen, who have been suspended or quit voluntarily. Further, that we demand the immediate re-instatement of such engineers and firemen to the places filled by them prior to the issuance of said circular.

Resolved, That all engineers and firemen who have participated in this trouble shall not be discharged, without first having been notified by the proper officers of the Philadelphia and Reading railroad and leased lines,

who shall receive a committee of engineers, and arbitrate all difficulties; said committee to be paid full time by the company when convened to settle any difficulties.

In conclusion, we wait your approval or rejection, and respectfully ask your immediate decision."

W. H. PARKER, (Chairman,)
W. J. SWEIGARD,
S. J. DAMPHAM,
E. O. TYLER,
LEWIS ARNOLD,
WILLIAM LUCKINS,
DAVID COOPER,
Committee.

The committee also telegraphed the following notice along the lines of the road:

"*To the Engineers and Firemen of the Philadelphia and Reading Railroad:*

"In view of the recent circular issued by J. E. Wootten, general manager, we have determined to stop work at 12 o'clock, noon, April 14, 1877. All trains on line of road at that time must be taken to destination. All engineers and firemen who comply with this notice will be supported by the Brotherhood."

The membership generally, together with a large number of non-members, who, it was understood, would be equally supported by the organization, obeyed the order issued by the committee, and, as a consequence, some difficulty was experienced for a brief time in the usual running of trains. The company's officials, however, were apparently equal to the emergency, as they, with but comparatively little trouble, secured a sufficient number of hands to run the majority of trains. So that within a short time, the road had assumed its usual activity, with its accustomed regularity, for as early as nine o'clock upon Monday, 16th, 125 engineers and a large number of firemen had applied for work. President Gowen, in a later interview stated that "up to the 21st instant," out of a total of 380 old engineers, they had lost 178; out of 380 firemen, they had lost but 127, and out of 1,405 conductors and brakemen, who, to some extent, had engaged in the strike, they had lost 51; so that 83 per cent. of the old hands had remained in the service of the company. There being no question of wages at issue, no further trouble was experienced, save what little occurred in the gradual assignment of new hands to the various trains upon the several divisions.

On the 1st of April the glass gatherers, of Pittsburg, held a meeting, and resolved to demand an advance of 20 per cent. in their wages, which the manufacturers refused to concede. A strike was accordingly inaugurated, which continued until the 24th instant, when the men resumed work at the old wages.

On the 11th of April seventy-four tapestry weavers in the employ of Dobson & Co., Philadelphia, went on strike against a reduction of wages from four and a half to four cents per yard. The ingrain and cloth weavers had previously submitted to a reduction, the former, from six and a half to six cents a yard on "thirteen-pair," and the latter from ten to eight cents per yard, but, the tapestry weavers refused, on the ground that they had submitted the previous fall to a reduction from five to four and a half cents per yard. with the expectation of having their old wages restored in the spring, but on the contrary, they were confronted with a proposed reduction of another half a cent per yard, to which they would not agree. Messrs. Dobson & Co., employed between thirteen and fourteen hundred hands, very many of whom, it was alleged, contributed to the support of those upon strike. This, the strikers denied, asserting that the only aid received was in the sale and purchase of tickets for a concert given for their benefit. On the 4th of May the mills were shut down, all the employés discharged and paid their wages. After a couple of weeks, notice was given to the hands that work would be resumed on the 21st, when all went to work, except the tapestry weavers. To a committee the firm stated that no work would be given except upon the terms offered six weeks previously, to which they assented in a few days after the resumption of the mills.

The lamp-chimney blowers, in three factories in the city of Pittsburgh, in the month of June, went upon strike against the introduction of what was called the patent "crimper," being a machine operated by steam power for crimping the top of lamp chimneys. They old style chimneys were made with plain tops, which were finished by attendant boys, who were paid by the firm. The number made at each "move" was three hundred, and the blowers' wages was two dollars and four cents. Subsequently "crimping" was introduced, and, as it was at first done by hand, the number for each "move" was reduced, as it required extra labor. The number was fixed at two hundred and fifty, and the wages at two dollars and seventeen cents. Dithridge & Co. secured a patent for a machine crimper, and introduced it successfully in their works. After operating it for a year, they sold the right to another firm, who also operated it for eighteen months. Their output being increased, other firms in order to successfully compete with them, were forced to purchase the right and introduce it in their factories. The "crimper" relieved the blower from crimping by hand, as with the machine it was done by a boy, and he paid by the firm, and, as a consequence, the proprietors demanded that the number per "move" should again be increasd to three hundred, and the wages to be at the old rate, two dollars and four cents. To this the blowers objected and refused to work, alleging that the increased production was injurious to their trade. All the factories stopped except that of Dithridge & Co. This was probably the longest strike that ever took place in Pennsylvania. After remaining idle for one year, two firms consolidated under the name of Hogan, Evans & Co.,

went to Chicago, and there started a factory introducing the patent "crimper." They went as far east as Boston to procure hands. There they were closely followed by a committee representing the striking blowers, whose mission it was to prevail upon men not to go to Chicago to work the "crimper." It was a continued siege of recruiting and deserting for eight months, during which time large amounts of money were expended. Finally, in June, 1879, after two years' idleness, the men yielded, and expressed a willingness to go to work. As the company's greatest interest were centered in Pittsburgh, they returned, lighted their fires and resumed work upon the following agreed conditions: "A move shall consist of three hundred chimneys, the patent crimper shall be used, also the 'opener,' if considered necessary, to compete with eastern manufacturers. Rate of wages to be one dollar and eighty-three cents per 'move.'" They were subsequently advanced to two dollars and four cents per move.

The memorable railroad strikes and riots of 1877, with their consequent loss of life and property, is still fresh in the minds of the people. At the session of the Legislature of the succeeding year a joint committee was appointed to "examine into all the circumstances attending the late disturbances of the peace in certain parts of the Commonwealth, known as the railroad riots, and endeavor if possible to ascertain the causes," &c. The committee consisted of Hons. John E. Reyburn, E. D. Yutzy, and W. L. Torbert, on the part of the Senate, Hons. D. C. Larrabee, A. F. Englebert, Samuel W. Means, P. P. Dewees, and W. M. Lindsey, on the part of the House, the latter gentleman being selected as chairman of the joint committee. The committee was empowered "to send for persons and papers, examine witnesses under oath or affirmation," &c. They began taking testimony in Pittsburgh on the 4th of February, and afterwards visited Harrisburg, Philadelphia, Scranton, and Reading, making a thorough investigation of the matter referred to them. On the 23d of May they submitted their report, from which the following interesting extracts are taken:

"The Pennsylvania Railroad Company, some time after the panic in 1873, reduced the wages of its employés ten per cent., and on account of the general decline in business made another reduction of ten per cent., which took effect on the 1st day of June, A. D. 1877; these reductions to apply to all employés, from the president of the company down to those whose wages by the month or otherwise amounted to one dollar per day or less.

These reductions applied not only to the Pennsylvania railroad proper, but also to the roads which were run by the Pennsylvania Company, a corporation controlling several railroads, including the Pittsburgh, Fort Wayne and Chicago railroad and the Pan Handle railroad, each having one of its *termini* at Pittsburgh, and running these railroads in connection with the Pennsylvania railroad, and all being practically under one management.

These were not the only railroads in the country to reduce the wages of employés, a reduction of ten per cent. having gone into effect on the New York Central railway on the 1st day of July, A. D. 1877, and a similar re-

duction on the Baltimore and Ohio railroad on the 16th day of July, A. D. 1877; your committee having no information as to whether or not any prior reduction had been made by the last-named roads. In consequence of these reductions of wages a great deal of dissatisfaction was produced among the employés of the roads, especially those known as trainmen, consisting of freight engineers, firemen, conductors, brakemen, and flagmen.

These employés had consulted together in relation to the question of wages, and as the result of these consultations, a committee had been appointed some time the latter part of May, composed principally of engineers, who waited on Thomas A. Scott, President of the Pennsylvania Railroad Company, and stated the position of the men and their alleged grievances. Colonel Scott talked frankly with the committee, and stated the position of the railroad company, which was, in substance, that in consequence of the depression in all branches of trade, commerce, and manufactures throughout the country, the business of the company had so fallen off that it became a matter of necessity to reduce the wages of the employés, and, that as soon as the business of the company would warrant it the wages would be increased. The committee expressed their satisfaction at the statement made by Colonel Scott, and said they would go back to Pittsburg and report the same to the employés, and that everything would be satisfactory and all right thereafter. The committee retired, and soon returned with their views set forth in writing, and signed by them, stating that their conference with Colonel Scott had proved satisfactory, and that his propositions were acceptable to the committee. No complaint as to wages was made thereafter by any of the employés of the Pennsylvania Railroad Company or of the Pennsylvania Company to any of the proper officers until after the strike of July 19th.

Immediately after the order for the ten per cent. reduction, to go into effect on June 1st, 1877, was issued, the employés of the different railroads having their *termini* at Pittsburg, commenced agitating the question of a strike on account of said reduction, which agitation resulted in the organization of "The Train Men's Union," a secret, oath-bound society, the declared object of which was the protection of its members, in all lawful ways, by combination, but more particularly to bring the railroad companies to terms by all striking on a given day, and leaving the railroads with no men of experience to run the trains. The first meeting to organize a lodge of the society was held in Allegheny City, on the 2d day of June, A. D. 1877, and the first person to take the oath of membership was R. A. Ammon, better known as "Boss Ammon," then a brakeman on the Pittsburgh, Fort Wayne and Chicago railroad, who had been in the employ of the company about nine months. Boss Ammon seems to have been the leading spirit of the society, and he was immediately appointed as general organizer, to go out and organize branches of the Union on all the leading trunk lines of the country, especially on those centering at Pittsburgh. In a short time the Union was in full working order on the Pennsylvania

railroad, the Pittsburgh, Fort Wayne and Chicago railroad, the Baltimore and Ohio railroad, the New York Central railroad, the Erie railway, and the Atlantic and Great Western railway, and some others, and a general strike by the members of the Union was arranged to take place on the 27th of June, A. D. 1877, at twelve o'clock, noon. The report of the committee of engineers of the result of their conference with Colonel Scott was not satisfactory to the members of the Union, they believing, or at least saying, that the engineers were only looking after their own interests and taking care of themselves, and therefore the action of the committee did not arrest the preparations going on within the Union for the proposed strike. Allegheny City was the headquarters of the organization, and it was here that the general arrangements for the operations of the Union were perfected, the members claiming that at least three fourths of all the train men, whose headquarters were at the two cities of Pittsburgh and Allegheny City, belonged to the organization. The proposed strike on the 27th of June was to take place on the Pennsylvania railroad, the Pittsburgh, Fort Wayne and Chicago railroad, the Allegheny Valley railroad, Pan Handle railroad, and the branches of the roads named, the Union having been more thoroughly and better organized on these roads than on any others, and the movements were to be directed from Allegheny City. Other roads were to be brought into the strike as fast as possible, so as to make it general and comprehensive.

In accordance with this plan of operations, on Sunday, June 24th, some forty members of the Union were sent out on the different lines centering at Pittsburgh, to notify the members on these roads of the time for the strike to take place, and to make the necessary arrangements to make it a success. On Monday night, June 25th, a meeting of the members of the Union on the Pan Handle division was held, and it was there developed that a portion of them were dissatisfied with the proposed strike, and trouble ensued on this account. It was also ascertained that some member or members had divulged the plans of the Union to the railroad officials, and that the latter were taking measures to counteract and defeat the strike. The moving spirits saw at once that with divided counsels, and their plans known to the railroad officials, the strike, if commenced, would prove a failure, and measures were at once adopted to prevent it from taking place by writing and sending word to all points possible in the short time left. The strike did not take place on the 27th, and the members of the Union felt as if they had met with a defeat, which left a sore spot in their bosoms, and which rankled for a long time. It may be well to state here that the subsequent strike on the Baltimore and Ohio railroad, at Martinsburg, West Virginia, on the 16th of July, and the strike at Pittsburg, on July 19th, was not a strike of the Trainmen's Union, nor did the Union, as an organization, have anything to do with either, there having been no meeting of the society either at Pittsburgh or Allegheny City, after the 27th of June, 1877, up to that

time. The main and almost the only grounds for the proposed strike was the ten per cent. reduction of wages, although some complaint was made of the abuse of power and overbearing actions of the minor railroad officials. Some time in July, 1877, the Pennsylvania Railroad Company issued an order that all freight trains from Pittsburgh east to Derry should be run as "double-headers," the order to take effect on the 19th of that month.

A so called "double-header" consists of thirty-four cars, and is hauled by two engines, a single train consisting of seventeen cars, hauled by one engine. This was one of the measures of economy adopted by the company in consequence of the great reduction in business, caused by the financial situation of the country, and the reduced rates at which the business was done, caused by the great competition of the different railroads to secure business, and would enable the company to dispense with the services of one half of their freight conductors, brakmen, and flagmen on the Pittsburgh division of the road between that place and Derry, as only one set of men, aside from the engineers and firemen, were used on a "double-header." One engine could haul the same train from Derry to Philadelphia that it took two engines to haul from Pittsburg to Derry. "Double-headers" had been previously run between these two points, especially coal trains, but no general order for all freight trains to run as "double-headers" had ever before been issued. In selecting men to discharge under the order to run "double-headers," single men, and men who had been the shortest time in the employ of the company, were chosen, and the men with families, and old men, were kept so far as they could be. Quite a number of men had been discharged by the company prior to this time, some for cause, and more on account of the decrease in business since the panic of 1873; and the company had still in its employ many more men than could be employed at full time, keeping them along and allowing them each to work a portion of the time, probably believing in the old adage that "half a loaf is better than no bread."

Robert Pitcairn, the general agent and superintendent of the Pittsburgh division of the Pennsylvania railroad, had leave of absence for a short time, to commence on the 19th of July, and that morning he left for the East with his family, over the Pennsylvania railroad, no complaint, as he says, having been made to the officers of the company by the men, on account of the order to run "double-headers," and he having no knowledge or suspicion that any trouble was brewing or expected. The early morning freight trains left Pittsburgh as "double-headers," but when the time (8.40 A. M.) came for the next train to leave, the men (two brakemen and one flagman) refused to go out on a "double-header," and the train did not go. The conductor notified the dispatcher that the men had struck, and the dispatcher undertook to find men who would go, but all the train men refused. He then made up two crews from the yard men, and gave orders for the engine to back down and couple on the train, when the striking men, led by one Andrew Hice, threw coupling pins and other missiles at

the brakeman who was attempting to couple on the engine, one of which hit him, and, in the words of one witness, he had to run for his life. There was some twenty or twenty-five men in the crowd at this time; all men in the employ of the railroad company. The strikers took possession of the switches over which the trains would have to move, and refused to let any train pass out, and their number was from this time gradually increased by the addition of the men who came in on freight trains, who were induced to join the strikers as fast as they came in. Between ten and eleven o'clock, A. M., David M. Watt, chief clerk of the Pittsburgh division, who was acting in place of Mr. Pitcairn in his absence, went to the mayor's office and asked for ten policemen to be sent up to the yard of the company, to protect the men who were willing to go out on the trains, and arrest any one who should commit a breach of the peace, telling the mayor that, in his opinion, ten good men, with his (the mayor's) presence, would be sufficient for the purpose.

The mayor answered that he did not have the men; that the day force, with the exception of nine men, had some time previously been discharged by the action of the city council, and he could not send the night force, and also refused to go himself, saying he had other business, and it was not necessary for him to be there. He said, however, that they might get some of the discharged men to go, if Mr. Watt would become responsible for their pay, to which Mr. Watt assented, and the ten men were found, sent out under charge of Officer Charles McGovern. This force went along with Mr. Watt to the Twenty-eighth street crossing, the scene of the difficulty, and five of the police were placed at one switch just above Twenty-eighth street, and Officer McGovern with the balance took possession of a switch just below Twenty-eight street. An engine was there ready to back down and couple on to the train, and Mr. Watt gave orders to one of his men to open the switch, so the engine could run down on the proper track, but the man refused, saying he was afraid he would be injured by the strikers if he did so. Mr. Watt then stepped up and said "I will open the switch," when a brakeman by the name of Davis stepped in front of him, and said "Boys, we might as well die right here," and made some demonstrations. At this moment a man named McCall, standing behind Davis, struck Mr. Watt in the eye; that ended the attempt to open the switch at that time. After some difficulty and considerable chasing, McCall was arrested by the police, and taken to the lock-up. At this time, between twelve and one o'clock, P. M., there was about one hundred persons in the crowd, about one half of which were mere spectators. Twenty-five or thirty of the strikers attempted to prevent McCall's arrest by dodging around in the way, and by coaxing the police to let him alone. A few stones were thrown, but no very serious efforts were made beyond this by the strikers at this time. Soon after this, Mr. Watt sent one of his men to the mayor's office for fifty more policemen, and in answer to this call some five or six men came out about one, P. M., in charge of Officer

White. With these men, Mr. Watt went out to the stock-yards, at Torrens station, a distance of five and one tenth miles from the Union depot, to see if the stock trains at that place, which had been some time loaded, could be got off.

At this place there was a large crowd of persons, a large portion of whom were either present employés of the railroad company or were discharged men, and others were unknown to the railroad officials. One train of stock was coupled on by the yard engine, and run out by stratagem before the crowd were aware that it was an attempt to send the train east, and this was the last freight train that was forwarded, until after the troubles were over. About four, P. M., another attempt to move a stock train from Torrens was made, but the engineers all refused to undertake to couple on to the train, as they had all been threatened by the strikers, and were afraid of their lives, and at any move made by the engineer the crowd would interfere, so that the crew gave up their trains. Mr. Watt returned to Pittsburgh, and the stock was unloaded. Mr. Watt, on his return to Pittsburgh, went again to the mayor's office, about five, P. M., and asked for one hundred or one hundred and fifty police. The mayor was not in, having gone, as he testified, to Castle Shannon, to see his wife, who was sick. The mayor's clerk was at the office, and informed Mr. Watt that the men could not be furnished, that the day force of nine men in all were all busy, that the night force, which consisted of one hundred and twenty-two men, were not yet on duty, and could not be spared to be sent out to the scene of the disturbances, as they must be kept in the thicker portions of the city, and advised Mr. Watt to call on the sheriff of the county for assistance. On Friday morning, July 20, A. J. Cassatt sent David Stewart, of Pittsburgh, to invite the mayor to come to the Union depot, as he wished to consult him in regard to the situation, and had sent a carriage to convey him to the depot. The mayor replied that he would have nothing to do with it; the whole matter was taken out of his hands; they had no business to bring troops there. Mr. Stewart asked him if he would see Mr. Cassatt, if he would bring him down to the mayor's office. His answer was: "No, I will have nothing to do with it," and he turned and left. It will be noticed that this was some time before any troops were brought there, and a day and a half before the Philadelphia troops arrived. This ended the call, by the railroad officials, on the mayor for assistance to disperse the crowd interfering with their property, although, on that day, warrants were placed in the hands of the police for the arrest of some fifteen or twenty of the ringleaders of the strike, and after this time there does not appear to have been any serious attempt made by the mayor or police to assist in quelling the riots. The whole extra force raised by the mayor, as testified to by J. J. Davis, clerk of the chief of police, for whom bills were sent in for pay, was twenty-nine men.

During the afternoon of the 19th of July, one or two attempts were made to start freight trains from Twenty-eighth street, but when the en-

gine was started some of the crowd would step in front of it, swing their hands, and the engineer would leave his engine, and soon all efforts to start trains from this place were abandoned for that day.

Although the engineers and firemen and some of the conductors and brakemen professed to be willing to run at any time, yet, on the slightest demonstration being made by any of the strikers, they would abandon their engines and trains without making one decent effort to do their duty. The railroad officials claimed that they had plenty of men willing to run out the trains if they only had the opportunity, but when the opportunity was made for them the men did not care to take advantage of it. In the meantime the crowd was increasing at Twenty-eighth street, and Mr. Watt, after he left the mayor's office, went to the sheriff's office, and not finding him there drove to his residence, but he was not there. It was ascertained that he would be back in the course of the evening, and Mr. Watt returned to his own office.

The crowd had so increased at the Twenty-eighth street crossing that they had full possession of the railroad tracks there, and the yard engines could not be moved to transfer the cars in the yard from place to place, and orders were given to the engineers to put up their engines. Between eleven and twelve o'clock, P. M., Mr. Watt started for the sheriff's residence, and on his way called at the office of Honorable John Scott, solicitor for the Pennsylvania Railroad Company, to have that gentleman go with him. The sheriff was at home, and they called on him for protection for the property of the company, and advised him of all that had taken place up to that time. The sheriff went with them to the outer depot, near Twenty-sixth street, where they found General Pearson, who had come to Mr. Pitcairn's office to ascertain the condition of affairs, so as to report the same to Adjutant General Latta, who had telegraphed him from Philadelphia, making inquiry if he knew anything of the disturbances on the Pennsylvania railroad. Governor Hartranft was at that time out of the State, and somewhere in the West, on his way to California, and before going had given instructions to Adjutant General Latta, that in case of trouble requiring the presence of the military, he must, on the requisition of the proper civil authorities, assume the responsibility, and act as occasion demanded.

A little after midnight the sheriff, together with General Pearson, Mr. Watt, and some fifteen or twenty railroad employés, walked out to Twenty-eighth street, and there getting up on a gondola or flat car so as to be above the crowd, addressed them, advising them to disperse and go to their homes, stating to them his duty in case they refused. The crowd refused to disperse, and hooted and yelled at the sheriff, and fired pistol shots in the air while he was addressing them. They told the sheriff to go home, that they were not going to allow any freight trains to leave until the difficulty between them and the railroad company was settled, that the mayor and policemen were on their side, and that prominent citizens had

offered to assist them in provisions and money to carry on the strike. It should be here stated that there is no proof that any such offers of assistance were actually made, except that tradesmen with whom the strikers were dealing offered to trust them until they got work again, and one prominent citizen, whose name was used by the mob, came forward testified that he never made any such offer. Some of the mob also read messages purporting to come from other places, urging them to hold their ground, and assistance in men and means would be sent them. There is no means of ascertaining whether these messages were really sent as they purported to be, or were only bogus ones, used for the purpose of firing up the mob, and inducing them to hold out in their purpose. They were probably bogus, and they, without doubt, produced the effect intended by their authors. At this time the crowd numbered some two hundred men and boys, and was composed of some railroad men, some discharged men, quite a number of mill men, (that is men from the iron mills, glass factories, &c.,) and some strangers as they were called by the witnesses, repulsive, hard looking men, probably tramps and criminals, who always flock to a scene of disturbance like vultures to the carrion. The sheriff, as he testifies, becoming satisfied that he could not raise force sufficient to control the crowd, made a call on the Governor, by telegraph, for military to suppress the riot. The sheriff at this time had made no effort whatever to raise a posse to disperse the mob, and, in view of subsequent developments, it is probable that such an effort would have been futile. The copy of the telegram of the sheriff to the Governor is given in the report of the Adjutant General for 1877, as are, also, copies of all other telegrams sent and received by him during the troubles, and most of them in the evidence taken by your committee, and, therefore, they need not be copied here.

In view of the absence of the Governor, the telegram was also sent to the Secretary of the Commonwealth and the Adjutant General, the one to the latter reaching him at Lancaster, on his way to Harrisburg. General Latta immediately telegraphed General Pearson, who held the rank of major general, and commanded the Sixth division, National Guard, with headquarters at Pittsburgh, to assume charge of the military situation, place one regiment on duty, and if he found one regiment not sufficiently strong, to order out the balance of the division, and to report generally. General Pearson immediately ordered out the Eighteenth regiment, Colonel P. N. Guthrie, and this order was soon followed by one ordering out the Fourteenth regiment, Colonel Gray; the Nineteenth regiment, Colonel Howard; and Hutchinson's battery, in command of Captain Breck. These orders were responded to very slowly, as it was in the night time, and the men were scattered about the city, and some companies were made up of men at some little towns outside of the city. Colonel Guthrie resides at East Liberty, and received his orders about half past four, A. M., on the 20th. He at once notified his officers, and they notified the men, but as it was too early to be able to get messengers, the colonel had to go personally

to the officers, and it was about twelve o'clock, noon, when the regiment reported at the Union Depot hotel, two hundred and fifty strong. This regiment was ordered out to Torrens Station, to protect property and clear the track at the stock-yards, and on its arrival there, at half past one, found a crowd of from twelve hundred to fifteen hundred persons assembled. The regiment had no difficulty in getting into proper position, and Colonel Guthrie then lay in position, waiting further orders. It was understood between General Pearson and Colonel Guthrie, that the Fourteenth and Nineteenth regiments, and the battery, should clear the track at Twenty-eighth street, and protect the men on the trains in getting them started, and that Colonel Guthrie should clear the track at Torrens and protect the trains in passing that place. The Fourteenth and Nineteenth regiments assembled very slowly, and it was not until about five, P. M., that General Brown, commanding the brigade, got together three or four companies, and these not half full, and marched out to Twenty-eighth street. Before taking a position there, he received orders from General Pearson to return to the Union depot, as he had not force sufficient to accomplish anything, and accordingly he returned with his command.

In the meantime, General Pearson, fearing that a majority of the men in these regiments sympathized with the strikers, telegraphed Adjutant General Latta to that effect, and suggested that troops from Philadelphia should be sent on, and gave it as his opinion that two thousand troops would be needed to disperse the mob, as it was now (six thirty-five, P. M.) very large, (four thousand to five thousand men,) and increasing hourly. General Latta at once telegraphed Major General Brinton, commanding the First division of the National Guard, at Philadelphia, to get his command ready to move to Pittsburgh. General Brinton received this order in the evening, and at two o'clock on the morning of the 21st he had six hundred men at the railroad depot read to start. At Harrisburg, General Brinton received some ammunition and two Gatling guns, and reached Pittsburgh at one, P. M., and reported to General Latta at the Union Depot hotel, and there distributed twenty rounds of ammunition to his men. In order to understand the situation of things and the future movements of the troops, a description of the depots, buildings, tracks, and surroundings of the Pennsylvania railroad property at Pittsburgh is here necessary. The Union depot was situated between Seventh and Eighth streets, and from this place the line of the railroad ran eastwardly, at the foot of a steep bluff, from one hundred and fifty to two hundred feet high on the right, and with Liberty street on the left. There were a great number of tracks running side by side out to and some distance beyond Twenty-eighth street, with numerous switches in order that the tracks might be used conveniently, and many of these tracks were filled with cars, passenger and baggage cars near the depot, and freight cars further out. The outer depot, lower round-house, machine shops, &c., were situated at and near Twenty-sixth street, about a mile from the Union depot, some other shops were scattered along

there to Twenty-eighth street, near which street was what was called the upper round-house. From Twenty-eight street down to the Union depot the tracks were several feet higher than Liberty street, and a strong wall was built up at the side of Liberty street to support the embankment and keep it from caving into the street. At Twenty-eighth street there was a crossing much used, the bluff not being as steep or as high here as it is further down, and the hill is ascended by a diagonal road or path from the crossing.

About two o'clock, A. M., of the 21st, the Nineteenth regiment and Breck's battery were sent out to Twenty-eighth street, the battery to take a position at the foot of the bluff, near the crossing, and the regiment a position on the side hill, a little above and commanding the crossing. About four, A. M., of the same day, the Fourteenth regiment was sent out, and ordered to take a position higher up the hill, and above the Nineteenth regiment, and the orders given by General Pearson were to hold this position, and keep the Twenty-eighth street crossing and the tracks in the vicinity clear of the crowd. This Twenty-eighth street crossing was the gathering point of the mob, and but very little effort seems to have been made during the day (the 21st) to carry out General Pearson's order. A few times in the forenoon one or two companies were ordered down, across the tracks at the crossing, and back again, and for the time would clear away the crowd in their immediate path, but as no effort was made to hold the crossing, nor to clear the tracks on each side of it, the effort amounted to nothing, and when the soldiers went back to their position on the hill the crowd would again resume possession of the ground cleared. The soldiers also fraternized with the mob. Most of the time their arms were stacked, and they were mingled indiscriminately with the crowd, lying about on the ground talking with them, and when, about four, P. M., the Philadelphia troops were marched out to Twenty-eighth street, a dense crowd filled the Twenty-eighth street crossing and vicinity, and was so mixed up with soldiers that no line of regiments or companies could be observed, and it was with difficulty that soldiers could be discovered at all. On the morning of the 20th, warrants had been issued for the arrest of some fifteen or twenty of the ringleaders of the strikers, and were placed in the hands of police Officer McGovern and his men to be executed. His orders were not to attempt to execute the warrants in the crowd, as they were excited, and a collision might be provoked, and if arrests were made at all they must be made quietly. If the opportunity for quiet arrests occurred, it was not taken advantage of, for no arrests were made, and no attempts seem to have been made to spot the men, or ascertain their whereabouts, or to do anything towards executing the warrants while they were in the hands of the officers. On the morning of the 21st, bench warrants for the arrest of the same persons were issued by Judge Ewing, and these were placed in the hands of Constable Richardson, who called on the sheriff for a posse to assist in making the arrests. The sheriff sent out ten of his deputies

to raise a posse for the purpose, and the deputies claim they were vigilant and thorough in their efforts to find men willing to serve, but were unable to raise any considerable number of persons. All sorts of excuses were made, and not over ten persons in all responded. No peremptory summons or call, such as it was his right and duty to make, was ever issued by the sheriff, and, as testified by him, when he reached the Union depot, with his deputies and posse, a short time before the Philadelphia troops arrived, all but six of his posse had left.

On Saturday it is the custom for the different mills and shops at Pittsburgh and vicinity to shut down about noon, or soon after; and on that eventful Saturday, July 21st, those in the neighborhood of the Twenty-eighth street crossing saw the crowd at that point suddenly and largely increased soon after the hour for shutting down the mills. A prominent manufacturer of Pittsburgh was at the Union depot on Saturday, about the time of the arrival of the Philadelphia troops, and had a talk with Mr. A. J. Cassat, third vice president of the Pennsylvania railroad, and, in this conversation, told him that Saturday was an idle day with their workmen in Pittsburgh, and that it would be great wisdom in him to wait until Monday, when the laboring men would be at their work, before attempting to open their road; that it was natural that their home troops should sympathize with the strikers, and they could not be fully depended on in case of a riot. Mr. Cassatt refused to give any directions to delay the movements of the military, saying they had already lost a great deal of time, and it was the duty of the Government to put them in possession of their property at once. General Brinton, with his command, arrived at Pittsburgh at three, P. M., and, after being furnished with coffee and sandwiches at the Union depot, were formed and marched out along the tracks to the Twenty-eighth street crossing. Before starting from the depot, General Brinton gave orders that the mob must not be fired upon, even if they spat in the soldiers' faces, but if they were attacked, however, they must defend themselves.

The plan adopted for the afternoon's operations was for a portion of the Philadelphia troops to take possession of the premises of the railroad company at and in the vicinity of Twenty-fifth and Twenty-sixth streets, where the freight trains that had been prepared to send out stood, and clear this portion of the tracks from the crowd, so that when the tracks and switches at Twenty-eighth street were cleared and put in possession of the company, the trains could at once be moved, as the engineers and men were said to be ready to start with the trains. The balance of the Philadelphia troops were to move up to Twenty-eighth street and coöperate with the Pittsburgh troops in clearing the tracks at that point, and when this was done the trains were to be started, and after a few trains had been run out it was believed that the strike would be broken up; that the strikers would see the futility of trying to resist the law when backed up by the military, and would give up the contest.

The sheriff and his deputies (he had no posse to speak of) started from the Union depot towards Twenty-eighth street, to execute the warrants in the hands of Constable Richardson, a little in advance of the Philadelphia troops, but were delayed on the way out, somewhat, by looking after men, and before arriving at Twenty-eighth street, were overtaken by the troops, but no arrests were made by them. The second division, in command of Brigadier General E. De C. Loud, was left on Twenty-fifth and Twenty-sixth streets, with orders to disperse the crowd at that point and protect the employés in starting the trains. The order was promptly executed by throwing out skirmish lines and clearing the tracks in the vicinity of the trains. The first division brigade, under the command of Gen al E. W. Mathews, and the battery of Gatling guns, all under command of General Brinton, marched out to near the Twenty-eighth street crossing. The command marched out by column into the crowd as far as possible, and then Genera Brinton gave the command to wheel into line by the right flank, which brought one line lengthwise of the tracks, below the Twenty-eighth street crossing, facing Liberty street, and another line was formed parallel with the first, on the opposite side of the track facing the hill. The crowd was ordered to disperse by the sheriff, and he was answered by hoots, jeers, and rough language. The move made by the troops had cleared the tracks between the two lines, and the crowd now began forcing itself down from Twenty-eighth street, between the lines formed each side of the tracks. General Brinton ordered tw companies to form across the tracks at right angles with the two lines already formed, and between them, facing Twenty-eighth street, and to march up and press the crowd back and clear the crossing. The sheriff and his deputies had been in front up to this time, but they now took a position in rear of the two companies. General Pearson had been with the command until this time, when, seeing the size of the crowd, and its determination, he went back to Mr. Pitcairn's office to telegraph General Latta, for the purpose of having more troops ordered to the place. The two companies, in carrying out their orders, marched up against the crowd, with their pieces "arms port," and endeavored to press them back in this way, but no impression could be made on them. General Mathews, at this juncture, seeing, as he said, that the mob was firm and determined, and would not bear temporizing with, gave his men orders to load.

The two companies were then ordered to charge bayonets; many of their guns were seized and some of the bayonets nearly twisted off, but no impression was made on the crowd. While these movements were being made, the mob was becoming more and more noisy, defiant, and boisterous, and were throwing stones and other missiles at the troops, several of the latter having been hit, and one or two seriously injured. Several pistol shots were also fired by the crowd, and immediately after the pistol shots, the troops commenced firing on the mob. The firing was scattering, commencing at a point near where the pistol firing took place, and running along the line in a desultory manner, until it became almost a volley for a

moment. The officers ordered the firing to cease, and stopped it very soon. There is a conflict in the evidence as to whether or not an order was given the troops to fire, but the great weight of the testimony is, that no such order was given. The most of those who testify that such an order was given, say it was given by General Pearson, but General Pearson was not present when the firing took place, but was at the superintendent's office. Every person, however, from General Pearson down, who have given an opinion on the subject, say that an order to fire was justified and should have been given, and the officers in command say that the order would have been given very soon. The firing had the effect to disperse the crowd at once, they scattering in all directions, and leaving the troops in full possession of the Twenty-eighth street crossing and the tracks in the vicinity. Several persons were killed and wounded, and as is usually the case, a number of innocent people suffered. The coroner held inquests on the bodies of twenty-two persons in all, the most of whom were killed by the soldiers at this time at Twenty-eighth street, but a few were killed the following night and Sunday morning at or near Twenty-sixth street. The number cannot be ascertained with any certainty, but several were seriously injured. It is believed, by those best situated to know the facts, that a number of the mob were secretly disposed of or taken care of by their friends, and whose names have never been given. If men had been ready and willing to man the trains, they could have been sent out after the dispersal of the crowd, but the occurrence at Twenty-eighth street seems to have thrown everybody into confusion, and, as usual, the engineers and train men were glad to find some excuse for not going. No attempt seems to have been made to move the trains, which were supposed to be ready at Twenty-sixth street, and the cars remained there until they and their contents were burned. The troops remained on the ground from the time of the firing (about five P. M.) until about dusk, when they were ordered, by General Pearson, to move into the lower round-house and machine-shop, near Twenty-sixth street, and remain for the night, as all attempts to move trains had been abandoned, and the troops needed rest and food.

The crowd had come together again gradually, in the vicinity of the Twenty-eighth street crossing, but whenever the troops made any move towards them, they would scatter, and when the troops marched into the lower round-house and machine-shop, the mob took possession of, and had full sway again at the crossing. General Pearson had ordered the Fourteenth and Nineteenth regiments to go down and take possession of the transfer depot as it was called, about two hundred yards below the lower round-house, and these regiments marched down there about the time that General Brinton's command went into the round-house and machine-shop. Colonel Gray, at request of Colonel Howard, assumed command at the transfer depot, and held possession until about ten, P. M., when General Brown came and told Colonel Gray that the place was untenable,

and could not be held; that he had information which made it necessary for them to get out, and ordered the command to go to the Union depot. Colonel Gray had been disgusted at the order to leave the side hill above the Twenty-eighth street crossing, thinking it a great mistake, and was also disgusted at the order to move down to the Union depot. Colonel Gray received orders from General Brown to disband his command, and at once called around him his officers, and protested against it. Said it was a disgrace to do so, with the mob in force in the vicinity, and a disgrace to desert the Philadelphia troops, but the order was obeyed, and the men dispersed to their homes, carrying their guns with them; about eleven, P. M., General Brown testified that leading citizens and military men advised him that it was best to disband these troops, that their being kept under arms aggravated and exasperated the mob, and that this advice coincided with his opinion, and therefore the order was given. About two hundred men were present at the time they were disbanded, nearly as many more having left from time to time, during the day and evening, and it is General Brown's opinion, that they were absent on account of their sympathy with the strikers, and not on account of fear. When these troops marched down to the transfer depot, the mob did not jeer or rail at them, as they did at all times at the Philadelphia troops, and it does not seem from the evidence, that anything had been done by them to aggravate or exasperate the mob in the least. General Pearson entered the round-house with General Brinton's command, and left them about half past eight, to see about getting provisions for the men, who had received no regular meal since leaving Philadelphia. They had been furnished with coffee and sandwiches at Altoona, and the same at Pittsburgh.

On leaving, General Pearson gave General Brinton orders to hold the position until he returned, which he thought would be within an hour. On reaching Union depot, General Pearson was informed that the mob was very much exasperated against him, as they held him responsible for the firing on them by the troops, and was advised by General Latta and others that his presence would still further aggravate the crowd, and that he had better retire to some place of safety until the excitement was over, which advice was followed, and he, therefore, did not return to General Brinton. The effort to provision General Brinton's troops was a failure, as the mob seized, used, and destroyed the food which was sent out for the purpose. The round-house and machine-shop overlooked Liberty street on one side; on the other side were the tracks, many of them filled with cars, and near the machine-shop were piles of lumber and materials used in repairs. Pickets were put out on this side of the machine-shop, so as to prevent the mob from taking shelter behind the piles of lumber, and firing on the troops from these places. The mob had broken into two or three gun stores in the city between eight and nine o'clock that evening, and had, by this means, secured guns and ammunition, and soon after dark commenced firing on the round-house and machine-shops, firing in at the windows and

at any soldiers they could get sight of, one of the mob firing an explosive bullet, which the troops could see explode every time it struck anything in their vicinity.

Two of the soldiers were wounded, one in the arm and one in the leg, during the night, which is all the casualties that occurred among them until after they left the round-house and shop in the morning. About ten o'clock, P. M., the mob began setting fire to the cars, and running them down the track nearest the round-house, in order, if possible, to set it on fire, and thus drive out the troops. From some distance above Twenty-eighth street to below Twenty-sixth street it is down grade, and the cars will run of their own gravitation, on being started, down to and below the buildings in which the troops were located. The first car fired was a car of coal, and, after being set on fire, it was started on the down grade with one of the mob on it, and he, on arriving at the round-house, broke up the the car, and stopped it. Other cars were fired, and run down against the first one, and there was soon a string of fire the whole length of the shops on the side next the tracks. The round-house was well-supplied with water, and the troops were enabled to keep the fire from communicating with the buildings during the night.

About one o'clock, on the morning of the 22d, (Sunday,) it was discovered that the mob had a field-piece on Liberty street, ready to fire on the round-house. By General Brinton's orders, his men were stationed at the windows ready to fire, and the mob were notified to abandon the gun, and not attempt to fire it, or they would be fired on. They paid no attention to the warning, and, when one of them was seen with the lanyard in his hand ready to discharge the piece, orders were given the troops to fire, and several of the mob fell, and the rest ran away. Several attempts were made by the mob during the night to creep up and discharge the gun, but the soldiers kept close watch on it, and allowed them no opportunity to do so. General Brinton succeeded in communicating with General Latta during the night by sending out one of his men, Sergeant Joseph F. Wilson, who, by disguising himself, succeeded in getting out and back twice, but would not undertake it again. He brought orders from General Latta to hold on as long as possible, that Guthrie had been ordered to report to him, and ought to reach him at five or six o'clock, but, if compelled to escape at last, to do so to the eastward, to take Penn avenue, if possible, and make for Colonel Guthrie, at Torrens. The scout, Wilson, brought in the last dispatch about two o'clock, A. M., the 22d, and this was the last communication that reached General Brinton while in the round-house. The ordeal through which these men passed that night was fearful. Tired, hungry, worn out, surrounded by a mob of infuriated men, yelling like demons, fire on nearly all sides of them, suffocated and blinded by smoke, with no chance to rest, and but little knowledge of what efforts were being made for their relief, with orders not to fire on the mob unless in necessary self-defense, the wonder is that they were not totally demoralized; but the evi-

dence of all the officers, is that the men behaved like veterans, obeyed all orders cheerfully and with promptness, and during the whole night but one company manifested any spirit of insubordination, and these proposed to lay down their arms and quit, as they were not allowed to use them on the mob, while the latter were taking every opportunity of shooting down the soldiers. This insubordination was quickly brought to an end as soon as the attention of the proper officer was called to it, and when the troops marched out in the morning, no one could tell by their actions which of the men had wavered during the night. About half past seven, Sunday morning, the 22d instant, the machine-shop caught fire in many places, the roof of the round-house also was on fire, and it became necessary to evacuate the buildings. The two Napoleon guns could not be removed, and were spiked, and about eight, A. M., the command marched out into the street in good order, taking their Gatling guns with them. The mob scattered in every direction at sight of the troops coming out, and no attempt was made to molest the soldiers until they began their march eastward by Penn avenue, in pursuance of the orders received from General Latta.

After marching two or three squares, the troops were harrassed by a fire in their rear. They were fired at from second story windows, from the corners of the streets, and from every place where one of the mob could fire from under cover so as to be safe himself from a return fire. They were also fired at from a police station, where eight or ten policemen stood in uniform, as they passed, and when they were a convenient distance from the station, shots were fired at them from the crowd there assembled. It is hard to believe charges of this kind, but the evidence is too positive and circumstantial to leave room for doubt. At one point, just before reaching the United States arsenal, there was some confusion among the men in the rear of the column, caused by an attack by the mob that was following up, and a halt was made, and the Gatling guns used on the attacking party, which dispersed them, and this ended all attacks on the troops. In this retreat, three of the soldiers were killed and several wounded, one of whom, Lieutenant Ashe, died a few days afterwards, at the United States arsenal. On arriving at the arsenal, several of the soldiers climbed over the fence, into the grounds, and General Brinton called on the commandant, Major Buffington, for leave to feed and shelter his troops there. General Brinton and Major Buffington disagreed as to what occurred between them at that time, which question of veracity the purposes of this report does not require us to decide, but General Brinton is corroborated by the testimony of one of his officers, and Major Buffington has no corroborating witness. The result of the conference was, that General Brinton and his well men went on, and his wounded were left, and well cared for, at the arsenal. General Brinton, hearing nothing from Colonel Guthrie, continued his march ont to and through Sharpsburg, and finally brought up in the vicinity of the work-house, and encamped on the grounds near that institution, where he was furnished with rations for his men, and

gave them a chance to get the rest they so much needed. These rations reached General Brinton's command during Sunday afternoon, through the personal exertions of A. J. Cassatt, who, from the time of the occupation of the round-house by the troops, had been unwearied in his endeavors to get provision to them. The command was also furnished with blankets and other necessary camp equipments, by Colonel Thomas A. Scott, who had also been vigilant in looking after the welfare of the men, and all necessary transportation needed on their behalf, after their departure from Philadelphia, unprepared for a campaign, on account of the brief notice given them. To these two gentlemen, the friends of the National Guard owe a debt of gratitude for the personal interest taken by them, at all times, during the campaign, to render any service that lay in their power to make the men comfortable.

The destruction of the railroad property by the mob had been continued all night, the cars and goods contained in them that could not be carried off being burned as fast as they could be broken open, the goods thrown out and the cars set on fire. Crowds of men, women, and children were engaged in the work of pillage, and everything portable, of any value, was seized as fast as thrown from the cars, and carried away and secreted. One feature of the mob at Pittsburgh is new in this country. A large number of women were in the crowd at Twenty-eighth street, on Saturday, the 21st instant, and according to testimony, they talked to the sheriff and others who tried to get the crowd to disperse, worse than the men, used viler epithets, and more indecent language, and did everything in their power to influence and excite the mob to resistance. They also, during Saturday night and Sunday, brought out tea and coffee for the men engaged in the destruction of property, and were the most active in carrying away the goods taken from the cars. The work of pillage and destruction continued all day Sunday, and the actual destruction was participated in by only thirty to fifty men, the citizens in the meantime standing looking helplessly on, and no effort made to stay the damage by the bystanders. There was a very large crowd in the vicinity of the burning, who were supposed to be in sympathy with the destruction, and this probably deterred any one from interfering to put a stop to it. The police, on Sunday, arrested some seventy-five persons who were carrying off goods, the arrests being made some distance from the place where the articles were taken. Those arrested were taken before Deputy Mayor Butler, and most of them were by him discharged. This seems to be all that the police did to restrain the rioting that day, and it is in evidence that one policeman in uniform got into one of the cars and threw goods out to the mob.

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Soon after the first car was set on fire, Saturday night, the alarm of fire was given, and the firemen with their engines at once turned out and arrived in the vicinity of the fire about eleven o'clock, but were not allowed

to attempt to stop the destruction of the railroad company property. They tried several times to lay their hose, so as to play on the fire, but the mob cut their hose and threatened them with death if they persisted. Some of the police testified that they cleared away the mob at one place and notified the firemen that they were ready to protect them if they would go to work and put out the fire; but the firemen deny this, and testify that no such offer was made, and that at no time did they see half a dozen police together.

In view of the general failure of the police to do what must be considered their duty in regard to the rioters, during the whole time of the trouble, they need not think it strange if the majority of people are inclined to believe the statement of the firemen. The officers of the fire department testify that the firemen were well organized at the place of danger, ready to do their duty at all times, and that this department was the only one in the city that was organized trying to do its duty during the time of the riot. The firemen, after some remonstrance on the part of a portion of the rioters, were allowed to save private property, and to this fact may be ascribed the safety of a good portion of the city; for the fire from the railroad property communicated to the adjoining property of individuals, and but for the labors of the firemen there must have been a very extensive conflagration throughout Pittsburgh. The destruction of property did not cease until about five o'clock, P. M., on Sunday, the 22d, and then only when the limit of the corporation property had been reached at Seventh street by the destruction of the Union depot, Union Depot hotel, and the grain elevator. The latter did not belong to the railroad company, but it was believed by the mob to be owned by a corporation, and therefore it was doomed to destruction with the rest. Several times during the day—Sunday—the cry of "police" was made by some one in the crowd, and whenever this was done the mob would scatter in all directions, but as soon as it was ascertained to be a false alarm they would again return to the work of destruction. It was demonstrated also, that whenever any citizen gave a determined and positive order to any of the mob it was usually obeyed.

A notice had been published in the Sunday morning papers, and had also been given out in the various churches, that a meeting of the citizens would be held at the old city hall, at noon, for the purpose of organizing to protect the city. Some citizens met at the old city hall, according to notice, but there seemed to be no head to the movement, and it adjourned to meet at the new city hall immediately. At this place a committee of safety was appointed, and a sort of an organization for defense commenced, but in the language of a prominent witness engaged in the movement: "They were all day doing very little; there was no head anywhere; the mayor did nothing, and seemed to be powerless, and the sheriff had run away. The mayor seemed to be confused; he ran around some, but really did nothing." A nucleus for an organization of the responsible citizens

of the city was formed, however, which on the following day developed into vigorous action, and the best men of the city came forward and subscribed liberally to a fund to pay an extra police force, and pledged themselves to subscribe any amount necessary to put the city in a complete state of defense against the mob element. Some sixty thousand dollars was actually subscribed, of which about fifteen thousand dollars was used to pay the extra police force called into existence by the action of the citizens during the emergency.

About four to five o'clock, P. M., a body of fifty or sixty men composed of professional and business men, were organized under the lead of Doctor Donnelly and armed at first with ax-helves, and afterwards with some old muskets and no ammunition, and with white handkerchiefs on their left arms, appeared at the scene of the trouble, near the Union depot and elevator, but it was too late to save these buildings as they were already burned. The crowd gave way to this force, but as the destruction was completed here but little could be accomplished. The doctor ordered the mob to take hold and tear down a fence so as to stop the spread of the fire, and they obeyed orders.

There was such an apathy among the citizens, that it took all the day to raise this force led by Doctor Donnelly, and after being on the ground a short time, and finding nothing for them to do, they disbanded.

During the day (Sunday) a car load of whisky or high wines was broken open by the mob, and they drank very freely of it, and towards night, at the time the Union depot and elevator were burned, most of the active rioters were so drunk as to be unable to continue the work of destruction, if they had been so disposed. Whisky had done good service in this case, if never before. The fatigue consequent upon the labors of Saturday night and Sunday was also producing its effect upon the rioters, and taken in connection with the fact, that most of them must have been filled to satiety with rioting and destruction of property, shows a good cause for the waning of the riot on Sunday afternoon. A few of the rioters, between five and six o'clock, P. M., went to the Duquesne depot, (the property of the Pennsylvania Railroad Company,) at the junction of the Allegheny and Monongahela rivers, with the intention of burning it and the cars in the vicinity. One car was set on fire and an attempt made to set the depot on fire, but some six or eight of the citizens' safety committee arrived there about the time the rioters did, and they interfered at once to put a stop to destruction, and had no difficulty in doing so, as the rioters desisted and left as soon as they saw any authority exerted in opposition to their schemes.

The Eighteenth regiment (Colonel Gutherie) had remained at Torrens station, keeping the track clear at that point, and waiting for the expected trains. The crowd at that place numbered about fifteen hundred men, composed of mill men, some railroad men, boys, roughs, and tramps. The passenger trains were allowed to run by the mob, but between Pittsburgh

and Torrens they were filled to overflowing by the roughest of the crowd, who traveled backwards and forwards between those places on the trains at their pleasure, and no one dared to interfere with them. They even climbed on the engine and tender, and roofs of the cars, and controlled the movements of the trains whenever they chose so to do between those two points. At Torrens, the crowd would occasionally become demonstrative and defiant, and Colonel Guthrie was obliged to charge bayonets on them several times, and each time had no difficulty in dispersing them. Twice he ordered his men to load in presence of the crowd, and this of itself dispersed them. Colonel Guthrie's troops were not allowed to fraternize with the mob, but were kept entirely aloof from them, and this regiment does not seem to have become demoralized, as the Fourteenth and Nineteenth regiments were. About four o'clock, P. M., Sunday, Colonel Guthrie, hearing that the Fourteenth and Nineteenth regiments had been disbanded, and being unable to ascertain the exact condition of affairs at Pittsburgh, went there and consulted with General Latta, and his regiment was ordered to march to that place, where they arrived about dark, and, of course, too late to be of any service in stopping the destruction of property, which had all taken place before their arrival. They marched to the armory and stayed all night, and on Monday forenoon, the Twenty-third, together with the Fourteenth and Nineteenth regiments, which had been ordered to reassemble that morning, marched through the principal streets of the city for the purpose of overawing any riotous disposition that might still remain in those who had been engaged in the work of destruction the day before. Colonel Guthrie assumed command of the division, his commission being older than Colonel Gray's or Colonel Howard's, and when General Brown wished to assume command Colonel Guthrie refused to recognize his authority, on account of the manner in which he had managed matters on Saturday, the 21st. On Saturday night, a few of the leading citizens had suggested that it would be well to call out all of the old police force that had been discharged, and, in accordance with this suggestion, the chief of police cause a notice to be published, calling on them to report at his office, and they would be assigned to duty. During the day, several reported and were employed, and afterwards most of the old force were taken back and assigned to duty for a time. This extra force, together with the force of citizens organized for the purpose, patrolled the city that Sunday night, and succeeding nights, until the danger had passed.

From the first commencement of the strike, the strikers had the active sympathy of a large portion of the people of Pittsburgh. The citizens had a bitter feeling against the Pennsylvania Railroad Company, on account of, as they believed, an unjust discrimination by the railroad company against them in freight rates, which made it very difficult for their manufacturers to compete successfully with manufacturers further west, and this feeling had existed and been intensified for years, and pervaded all classes. A large portion of the people also believed that the railroad company was

not dealing fairly by its men in making the last reduction in wages, and the tradesmen with whom the trainmen dealt also had a direct sympathy with the men in this reduction, for its results would affect their pockets.

The large class of laborers in the different mills, manufactories, mines, and other industries in Pittsburgh and vicinity, were also strongly in sympathy with the railroad strikers, considering the cause of the railroad men their cause, as their wages had also been reduced for the same causes as were those of the railroad men, and they were not only willing but anxious to make a common fight against the corporations. This feeling of aversion to the railroad company and sympathy with the strikers was indulged in by the Pittsburgh troops to the same extent that it was by the other classes, and as many of them had friends and relatives in the mob, it is not much to be wondered at that they did not show much anxiety to assist in dispersing the crowd and enforcing the law.

With the repulse of the attempt to set fire to the Duquesne depot ended all active efforts by the mob to destroy property, and after that Sunday night no mob of any size was again assembled, although it was several days before complete order was fully restored, as the people had lost confidence in all the laboring men, and no one knew who to trust or what to expect from others on account of the extent to which the demoralization had gone.

About sixteen hundred cars, (mostly freight,) including passenger and baggage cars, with such of their contents as were not carried away by the thieves; one hundred and twenty-six locomotives, and all the shops' materials and buildings, except one or two small ones, of the railroad company, from above Twenty-eighth street to the Union depot, were burned on that Saturday night and Sunday.

It has been estimated, by a competent person, that the damage, including loss of property and loss of business, consequent upon the interruption of business, which was inflicted by the mob at Pittsburgh alone, was $5,000,000. This may be a large estimate, but if the consequential damages could be correctly arrived at, the total damage would fall but little short of the figures given. The actual loss of property by the railroad company alone, not including the freight they were transporting, is estimated at $2,000,000 by the officers of the company, from actual figures made. The authorities of Allegheny county adopted thorough measures to ascertain the extent of the loss of property, and to that end appointed a committee to investigate claims of those claiming damage. One hundred and sixty-nine claims were settled by the committee, that is, the amount of each claim of this number was adjusted and agreed upon by the committee and the parties, and the total amount thus adjusted is about $160,000, and all this is strictly private property. Some persons refused to adjust the amount of their claims with the committee, among which is the claim of the elevator company, amounting to the sum of $200,000. Property that was stolen was also recovered, and returned to the railroad company, amounting in value to at least $60,000.

The tracks from Union depot out to and beyond Twenty-eighth street, were nearly all ruined by the fire, the rails being warped and twisted, and the ties burned; they were also covered with the débris of the burned cars, and it was about a week after the destruction, or until July 30, before the railroad company were enabled to get their trains all running regularly again over this portion of the track.

During the troubles of the 20th and 21st, efforts were made by the strikers to come to an understanding or compromise with the railroad officials, and a committee to confer with the officials was appointed.

Some time on Friday, the 20th, the committee met Mr. Pitcairn, the superintendent of the Pittsburgh division, and presented him with a written statement of the demand made by the strikers, of which the following is a copy, viz:

"BROTHERHOOD OF LOCOMOTIVE ENGINEERS,
PITTSBURGH DIVISION, No. 50,
PITTSBURGH, PA., *July 20, 1877.*

To the Superintendent Western Division, Pennsylvania Railroad:

First. We, the undersigned committee appointed by the employés of the western division of the Pennsylvania Railroad Company, do hereby demand from the said company, through the proper officers of said company, the wages as per department of engineers, firemen, conductors, brakemen, and flagmen, as received prior to June 1, 1877.

Second. That each and every employé that has been dismissed for taking part or parts in said strikes, to be restored to their respective positions.

Third. That the classification of each of said departments, be abolished now and forever hereafter.

Fourth. That engineers and conductors receive the wages as received by said engineers and conductors of the highest class, prior to June 1, 1877.

Fifth. That the running of double trains be abolished, excepting coal trains.

Sixth. That each and every engine, whether road or shifting, shall have its own fireman.

Respectfully submitted to you for immediate consideration.

J. S. MCCAULEY,
D. H. NEWHARD,
JOHN SHANA,
G. HARRIS,
J. P. KESSLER,
Committee."

Mr. Pitcairn informed the committee that these terms could not be accepted by the railroad company, and that he could not send such a proposition to Colonel Scott, the president of the company, and the negotiations were broken off. An attempt was made on Sunday by some of the citizens

to induce the railroad officials to submit some proposition for a compromise to the strikers, but the officials refused, saying that the men had taken the law into their own hands, and that no proposition could be made to them until their property was restored and all opposition had ceased, and that it was now a matter of law, and the State authorities must settle the question with the men first.

The propositions embraced in the papers submitted by the committee of engineers, proposed that the railroad company should make concessions that had never been asked before. The first and second explain themselves fully, and had been grounds of complaint before. The third, requiring the abolishment of the classification of conductors and engineers, had never been a ground of complaint by the men. The conductors were divided into three classes—the first of which received a certain rate of pay per month the first year of service; an addition of ten per cent. for the second year, and another addition of the ten per cent. for the third year. The engineers were divided into four classes, and received an advance of ten per cent. for each year of service after the first until the fourth class was reached. This classification was adopted at the request of the men themselves some years previous, and no complaint in regard to it had ever reached the officers of the company.

This principle of classification had been practiced by other railroads, and has worked well, and is a good rule for both the men and the railroads, as its tendency is to secure and retain better men to run the trains.

The fourth proposition, if accepted, would have placed the new, inexperienced men on the same footing as the men of experience, and to give them at once the highest wages paid the older and more experienced men.

The fifth proposition was for the railroad company to back down and rescind the order made to run double-headers, and the sixth that the company should employ a fireman on all shifting engines, a place where they are not usually needed, as the engine is not engaged in steady work, and the engineer can do his own firing without trouble or over-work. No proposition of compromise was submitted to the strikers on the part of the railroad company, and what would have been the result if one had been made, it is useless to speculate about.

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More space has been given to the history of the riots at Pittsburgh than to any other place, as it was here the troubles first commenced in this State; here was the greatest loss of life, and it was here that, by far, the greatest destruction of property took place. We turn now to Allegheny City, just across the river from Pittsburgh, and the *termini* of the Pittsburgh, Fort Wayne and Chicago railroad, the Cleveland and Pittsburgh railroad, Pittsburgh and Erie railroad, and the West Penn division of the Pennsylvania railroad. On Friday morning, July 20th, the freight conductors and brakemen on the Pittsburgh, Fort Wayne and Chicago railroad refused to go out with their trains, and the railroad officers, fearing trouble,

sent up to the mayor's office for some policemen to preserve the peace, and ten were sent them. The mayor was not at his office at the time, but, on his return, he immediately went down to the depot to look after the troubles himself. At the time the mayor arrived on the ground there was a crowd of two hundred and fifty to three hundred and fifty men assembled and no man could be found to man the trains. One engineer came out with his engine, which was surrounded by the crowd, but no violence was used and there is no evidence of any threats being made at the time, but he returned with his engine to the round-house. After this time no attempt to run a freight train was made on this road until the troubles were all over and the men had given up the strike.

The strikers here were under the leadership of one R. A. Ammon, better known as Boss Ammon, and declared their intention to use no violence to prevent trains from running; that if the railroad company could get "scabs" (as the strikers called any man who was willing to work during a strike) to run their trains, they were willing the trains should run, but as the company was unable to find men willing to go out on the trains, the good intentions of the strikers were not tested. As this road was run directly in connection with the Pennsylvania railroad on the general western through traffic, it was but little object to force the freight trains out as long as the Pennsylvania railroad was blockaded, and, hence, no effort was made, after the first day, to run freight trains. The main efforts were in the direction of keeping the peace and preventing the destruction of property. The strikers declared their intention to keep the peace, and prevent the destruction of property, and not interfere with the running of passenger trains, and they were told that so long as they did this in good faith, they would not be interfered with. Mayor Philips immediately ordered out all his police to patrol the city, organized an extra force of citizens, and swore them in, made a requisition on the Secretary of War for five hundred guns, and got them, and placed them in the hands of the citizens, and generally had everything so well organized and arranged that any attempt at a riot could have been met and quelled at once. It was rumored that the mob had broken, or was going to break, into the armory and get the guns (about forty) stored there, and the mayor at once sent and had the guns all removed to a place of safety. It was also rumored that the mob from Pittsburgh intended to come over into Allegheny City, and destroy the railroad property there, and the mayor had the bridges all guarded by armed men, with two field pieces at the principal ones, which he was enabled to get, and there being no balls with them, he caused them to be loaded with square iron bars, an inch or so in size.

The city had fifty-five policemen, and these were kept on duty as much of the time as it was possible for men to be out, and no opportunity was given any of the Pittsburgh mob to cross over to Allegheny.

At the time it was alleged that the Pittsburgh mob was coming to Allegheny City, to destroy the property of the railroad company there, an ar-

rangement was made with Ammon and his men to take the freight cars out of the city, which was accordingly done, and ten miles of cars were hauled out from the city some miles, and stowed away on the side tracks, until the troubles were over, when the same men brought them back and turned them over, in good order, to the railroad authorities. It was also arranged with Ammon and his men, that, as long as the men behaved themselves and protected the property of the company, no soldier should be brought there to interfere with them, and if, at any time, they found themselves unable to preserve the peace and take care of the property, they were to notify the mayor, who would then furnish a force to preserve order. The mayor also, at the commencement of the troubles, sent his policemen around to notify the saloon-keepers, and others, to close their bars, and sell no strong drink to any one, and afterwards sent the force around to see that the order was obeyed. Although not legally binding, the order was very generally observed, and no trouble was experienced on account of the crowd using strong drink. The mayor had notices posted throughout the city that, if necessity required it, ten taps of the bell was to be the signal for the general assembling of the citizens at a given place for defense, which signal, fortunately, was not required to be given.

Mayor Phillips considered himself as the chief peace officer of the city, and if the sheriff or military had been called on for assistance, he did not consider either or both superseded him, but that it would have been his duty to have coöperated with them to the full extent of his power.

"Boss" Ammon and his party, which consisted of about one hundred railroad men and a crowd of two or three hundred outsiders, roughs, and laborers, continued to run the Pittsburgh division of the Pittsburgh, Fort Wayne and Chicago road until Tuesday evening, the 24th instant, at which time Governor Hartranft arrived from the West. When Ammon heard that the Governor was on the train, coming to Pittsburgh, he telegraphed him, welcoming him to the State, and assuring him a safe passage. On the Governor's arrival he was met by Ammon and introduced to the crowd, and gave them a short talk, counselling obedience to the laws, which was well received. It was now felt by all that the strike must come to an end immediately; that there was a man at the head of affairs who knew his duty and would not be trifled with, and that all parties would be fairly and justly treated. Boss Ammon immediately made arrangements to turn over the railroad to the proper authorities, he seeing very clearly that the proper time to do so had now come, and that further delay was dangerous. Some of his men could not agree with him that it was best to make terms while they could, and, at a meeting of the men, he was hissed, and they refused to hear him speak.

Thus fell from his position of boss the man who, with only eleven months' experience as a brakeman, for four or five days successfully ran one division of a great railroad.

It has by some been considered an extraordinary performance for a

young man of twenty-five, with the small experience he had, to control the men he did, and keep the passenger trains running regularly without accident on such a railroad; but when the circumstances are considered it is nothing wonderful. In the first place, a mob or crowd are always willing to follow any person who has nerve, and is willing to assume the responsibility and take the lead. Ammon had the nerve; was naturally shrewd and sharp, and knew how to control men, and they had been used to look up to him as the organizer of the Trainmen's Union. The mob always wants a dictator, and in Ammon they had one. In the next place, the great railroads of the county are so organized, and their trains are run by such a regular system in connection with the telegraph, that the trains can be run for days without a break, if the superintendent should abandon the road entirely. Ammon was a king so long as he led in the direction the crowd wished to go; when he undertook to put on the brakes, and get them to reason about their situation, and ran counter to their opinions, he was dethroned with as little ceremony or compunction as one school boy shows in knocking off the hat of another.

Human nature is the same everywhere; in politics, society, or with the mob, the leader must go in the direction his followers would have him go, or he is replaced for one more subservient. From Wednesday, the 25th of July, the officers of the Pittsburgh, Fort Wayne and Chicago railroad began to be able to get control of their road, and in a few days all the trains were running regularly. The other railroads running into Allegheny City had nearly the same difficulty with their men as did the Pittsburgh, Fort Wayne and Chicago railroad, and their trains for a few days were not regularly run, but they got along without any rioting or destruction of property, and were soon able to start all their trains again.

On Friday, July 20th, the freight conductors and brakemen of the Pennsylvania railroad at Philadelphia began to be uneasy, and on Saturday, the 21st, a strike was in full operation among them. They gathered in crowds at the yards of the company where the freight trains were made up to start out, and they, as in other places, were joined by a large crowd of idle men, tramps, and vagabonds, such as are found around a large city, and who scent out a chance for trouble or a riot as a crow scents carrion. The officials called on Mayor Stokley for policemen to keep the peace, and protect the property of the company. The mayor at once acted vigorously; sent out his police, with orders to disperse any crowd that might gather on the grounds of the railroad company, and, on advising with the citizens, he was authorized to call out an extra force, which he did at once. His action was so thorough and efficient that no serious interruption of traffic was experienced at that place, although crowds of rough men had gathered to the number of two or three thousand, and at one time, as estimated, to the number of four thousand to five thousand. They were dispersed by the prompt and vigorous action of the police, who would charge into the crowd, using their clubs freely, and scattered them at once. It was the policy

of the mayor not to allow a mob to collect, and this prevented a serious rioting.

To Mayor Stokley and his police force, the State, as well as the city of Philadelphia, is greatly indebted, and to their efforts may be ascribed the salvation of that city from the disgraceful scenes enacted at Pittsburgh.

On Saturday, July 21st, an uneasiness among the trainmen at Harrisburg and Scranton was observed, which, within the following two or three days, ripened into a strike. The first crowd which gathered in Harrisburg was on Saturday evening, the 21st of July, at the Pennsylvania railroad depot, to prevent the shipping of ammunition to Pittsburgh. The mayor was notified about ten o'clock, P. M., of what was going on, and he immediately sent for the chief of police, to make arrangement to meet the threatened danger. A lieutenant of police and another policeman, being the only members of the force then available for prompt service, were sent to the scene of the trouble, and, by arrangement, arrested a man, and started for the mayor's office with him, to draw the crowd from the depot. This ruse proved successful, and the ammunition was shipped before the crowd returned. Some three hundred or four hundred persons followed the policemen with their prisoner to the mayor's office, and, on their arrival there, the mayor went out and asked them to disperse, when about one half of the crowd left. The person arrested then appeared at the door, and informed the crowd that he had been arrested for drunkenness and disorderly conduct, and the balance of them dispersed.

On Sunday, the 22d, the trainmen, whose head-quarters were at Harrisburg, struck, and in consequence thereof, a large crowd gathered on the common, and listened to harangues from some of their number, among whom was an insane man from the lunatic asylum. From the common, the mob went to the Pennsylvania railroad depot, and prevented a train from going out, and the mayor, having notice of their movements, appeared upon the scene, and found some boys uncoupling an engine from the train, which the mayor put a stop to, and requested the engineer to move on, which he refused to do, giving as an excuse that he was told there were obstructions on the track a short distance out of town. The crowd at this time was composed of all kinds of citizens, good, bad, and indifferent, and they soon dispersed, and no violence took place. On Monday, the 23d, the mob gathered in large force about the railroad premises, and there being a large number of roughs and tramps, became more turbulent and interfered with the running of the trains. The mayor consulted the leading men about raising a posse to assist the police, there being only seventeen in the service of the city, and it was determined to raise a force of citizens, to be called the "law and order posse," who were to assemble at the mayor's office, on a given signal from the court-house bell.

The sheriff of the county was at Atlantic City, at the commencement of the trouble, and was telegraphed to when matters began to assume a serious aspect, and he arrived at Harrisburg on the evening of the 23d.

At this time the mob had increased largely, and was becoming demonstrative. The sheriff was informed as to what measures had been taken so far, and the mayor requested him to take charge of the situation, and control the movements generally, which the sheriff assented to, and at once prepared a proclamation, ordering all good citizens to turn out and assist in enforcing law and order, which proclamation was published in the papers the next morning. In the evening of the 23d, a portion of the mob had gone to Altmeyer's gun store, on Second street, and demanded admittance, and the proprietor had opened the doors to them. Word was sent to the mayor of the occurrence, and he took his police and repaired to the place immediately. He found the store full of men and boys, who had helped themselves to guns and knives. The mayor formed his police in front of the store, and went in and talked with them, and after a little parleying they delivered up the weapons they had seized, and left. About eleven o'clock, P. M., the mob gathered in large numbers on Market street, where it crosses the railroad, and working up Market street, they broke into two or three stores. The signal for the assembling of the citizens was given, and they assembled immediately at the corner of Third and Market streets to the number of three hundred to four hundred, together with the sheriff, the mayor, and the police. The sheriff, being a man of considerable military experience, had caused the citizens to adopt company and regimental organizations, by reason of which they were more quickly assembled and more easily handled and moved. The sheriff and mayor went down to the mob, and ordered them to disperse, which they refused to do, and then the police and citizens, armed with pistols and clubs, were marched towards the mob, the police and mayor at the head of the column. The mob numbered from seven hundred to one thousand, and two thirds of them dispersed on seeing the force marching against them, but some two hundred stood their ground. The force in command of the mayor and sheriff marched into this body, using their clubs freely, and completely dispersed them without firing a shot. Several of the riotors were arrested at the time, and quite a number during the week; in all some forty-five or fifty of the leaders were arrested, many of them being taken in their beds that night.

This determination on the part of the civil authorities, backed by the citizens, broke the spirit of the mob, and they did not again assemble in any great number, or commit any further breaches of the peace, although the citizens' organization was kept up for several days, and a special force of some fifty men was employed to be on the watch for some time, and until matters became quiet throughout the State. The whole number of citizens enrolled was about fifteen hundred, and more than one thousand were out on a parade at one time. On receiving news of the uneasiness manifested at Harrisburg, General Latta, then at Pittsburgh, telegraphed Major General J. K. Sigfried, commanding Fourth division National Guard with headquarters at Pottsville, to put the City Grays, of Harrisburg, on

duty at the arsenal at once, and order his whole division under arms, and move to Harrisburg. He also received a similar telegram from Governor Hartranft, from Medicine Bow, Wyoming Territory. The telegrams were dated July 22d. General Sigfried had, on the previous day, as a precautionary measure, ordered Captain Maloney, of the Harrisburg City Grays, to ship his arms and ammunition to the State arsenal, located just outside of the city, and to stay there and guard the same, to prevent it from falling into the hands of any mob that might undertake to capture it. General Sigfried arrived at Harrisburg with nine companies of the Seventh and Eighth regiments, on the 23d, and was there joined by eight other companies, making a force under his command of some eight hundred men. These troops were stationed at the arsenal at the time the mob was dispersed by the police and sheriff's posse, on the night of the 23d, but were not called on by the civil authorities, they evidently understanding their duty, which was to attempt to enforce the law by the means within their power, before calling on the military for assistance. Had this been done as promptly in some other places, much expense to the State might have been saved, and the riot nipped in the bud, instead of being allowed to become strong and organized, while waiting for troops to arrive. The mayor testified that when the disturbance first commenced, the citizens were lukewarm, and seemed to have considerable sympathy with the strikers, but as soon as affairs began to assume a serious aspect, they came forward and enrolled themselves freely in the law and order posse, and urged prompt and vigorous action, and by so doing they no doubt prevented the enacting at this place of the terrible destruction of life and property which took place in other localities.

At Reading, on Saturday, July 21st, the idle men began to gather in small bodies, and talk of strikes, and showed a disposition to interfere with railroad property, but no overt act was committed until Sunday, the 22d. The mob at this place was composed primarily of discharged employés of the Philadelphia and Reading Railroad Company, who had been discharged in the month of April preceding. The officers of that road learning that the society called the Brotherhood of Locomotive Engineers intended to make the company trouble, commenced preparing for it, and when in April the engineers demanded an advance in wages of twenty per centum, they were notified that any person who belonged to the Brotherhood could not remain in the employ of the company unless he severed his connection with that society, and that, as the society was a beneficial one, and had a fund for its members to draw on in case of sickness, the company would establish such a fund for its engineers. In consequence of this demand, and the circular of the company, some four hundred engineers, firemen, and brakemen left the service of the company, whose places were filled by promoting firemen and hiring new men, and those coming from other roads who held certificates of competency and good behavior. Many of these men who left the employ of the company had remained in and about Reading, and

on hearing of the riots at Pittsburgh, thought it would be a good time to take their revenge on the Philadelphia and Reading Railroad Company, and these, with other idle men, composed the nucleus of the mob, and were, as in other places, soon joined by all the tramps and criminals in the vicinity. None of the regular employés of the railroad company struck at that time, nor were they engaged in the riots. On Sunday trains were interfered with near the depot, and one or two cars burned, and on Sunday night, the 22d, the Lebanon Valley railroad bridge, which is a very high one, crossing the Schuylkill at Reading, and costing a large sum of money, was burned. On the evening of July 22d, Adjutant General Latta telegraphed to Major General William J. Bolton, commanding the Second division National Guard, with head-quarters at Norristown, to concentrate the Sixteenth regiment, under arms, at once at Norristown, and the Fourth regiment at Allentown, which was done as soon as possible, and the Fourth regiment, General Reeder, reported on the morning of the 23d, that all the companies were in hand except company A, which was in the hands of the mob at Reading.

At 3.50, P. M., of that day, J. E. Wootten, general manager of the Reading Railroad Company, telegraphed General Bolton that they were in need of protection at Reading, and asked that General Reeder be sent to that place with his command, which request was complied with, and General Reeder ordered to proceed to Reading at once. General Reeder, with the Fourth regiment, Colonel Good, arrived at Reading about seven o'clock, P. M., of the 23d, and instead of finding the mob in possession of the depot of the Philadelphia and Reading railroad, as he expected, found it in possession of a squad of the coal and iron police. The mob had had pretty much its own way all day, and had stopped the running of all freight trains, and interfered with the passenger trains. The sheriff of the county, George R. Yorgey, who was out of the city, had been telegraphed to by the chief of police, in regard to the trouble, and having been furnished an extra train, arrived in the city about five, A. M., of the 23d.

On his arrival, he refused to take any steps to raise a posse, although men were offered him by the railroad officials, and the only step taken by him to disperse the rioters, and preserve order during the troubles, was to issue a proclamation at night, on the 23d, requesting all good citizens to remain at their homes. When the chief executive officer of the county so fails in his duty, it is no wonder that mobs become defiant and destroy life and property.

The mayor was absent from the city, and the chief of police, Peter Cullen, was the only civil officer who did anything to preserve order. He, with the police force of twenty-seven men, did all that men could do under the circumstances. On Sunday night, with a few police, he tried to prevent the burning of the cars, and stopped it after a short time. On Monday, with his force, he cleared the crossing at Seventh and Penn streets, so that the street cars and people could pass, although the crowd numbered

several thousands. He also sent out his men to raise a posse of two hundred men among the citizens, but they all refused, and laughed at the police, and he did not consider that he had the authority to summon them or order them out.

The police force was still at the Penn street crossing when General Reeder arrived at the depot. The railroad officials requested General Reeder to move into the railroad cut to release a train that was in the hands of the mob, and as that was on the direct route to Penn street crossing, the point to which he wished to go with his force, he commenced his march through the cut. The cut is some three squares long; the banks about thirty feet high at the highest place, and at the ends tapering down to nothing, with streets crossing it by bridges in two places, and walks at each side near the top of the bank, with a stone wall down the face of the bank, and a parapet three or four feet high to protect the walks.

On nearing the cut, General Reeder's force was met by a large crowd hooting and jeering at the soldiers, and throwing stones, and the General, seeing the temper of the mob, ordered his musicians to the rear and his men to lead. The mob gave away, but as the troops entered the cut the mob, which lined both sides of the cut, began to throw brickbats, paving stone, and other missiles down on them, which the soldiers bore until they were two thirds of the way through the cut, when one or two pistol shots were fired at them, and one soldier fired his piece in the air, which was followed by scattering shots, and then by a regular volley, and firing was kept up until they reached the Penn street crossing, where the police were stationed. Of the two hundred and fifty-three soldiers only about fifty escaped being hurt, but none were seriously injured. Of the crowd eleven were killed, and over fifty wounded, two of the killed and some of the wounded being mere lookers on, and not engaged in the riots.

It being so dark that no one could be readily distinguished, seven of the policemen who were in line across the railroad at the Penn street crossing were wounded by the fire of the troops, some of them quite seriously, but they all recovered. This collision broke the spirit of the mob, and no destruction took place after that at this place. But the mob was threatening for several days, so much so that five companies of the Sixteenth regiment were immediately sent to General Reeder, from Norristown. This did not improve the condition of affairs, as the men of the Sixteenth regiment openly fraternized with the rioters, and declared their intention, in case of further trouble, of siding with them, and furnished them with ammunition. This soon destroyed the morale of the Fourth regiment, and General Reeder asked leave to move them to Allentown, which was granted, and General Bolton started for Reading on a special train, after giving orders for the movement and disposition of the balance of the men of his division. On arriving at Reading he found matters rather quiet at the depot, with the Sixteenth regiment in possession. The authorities fearing trouble that night, and the police having been out that day again trying to raise extra men for the force, and failing, General Bolton tele-

graphed to General Reeder, who was at Temple station, six miles distant, to return at once with the Fourth regiment; to which General Reeder answered that "the men positively refuse to return to Reading to-night; the regiment and company officers are perfectly helpless;" and from Colonel Good: "The men of the Fourth positively refuse to return to night; I can't get twenty-five men," and General Bolton finally ordered General Reeder to rendezvous at Allentown and await further orders. It is enough to say that three hundred United States troops arrived that day at Reading, and no further serious trouble was apprehended or occurred; that General Bolton ordered the Sixteenth regiment to return to Norristown; but company I mutinied and refused to return, and was disbanded in dishonor by the general. He afterwards issued an order to disband companies C, D, E, and H, of the Sixteenth regiment, subject to the approval of the Governor, for general insubordination and mutinous conduct while under orders.

At Scranton the railroad men began to feel the effects of the strikes in other places, and on Monday, the 23d of July, rumors were circulated that a strike was to be inaugurated on the roads running through that place. Mayor R. H. McKune was at Ocean Grove, and seeing the accounts of the troubles at Pittsburgh in the newspapers, hurried home, where he arrived on the evening of the 23d. On the 24th he tried to get the city council together to prepare for the emergency, as the strike, according to rumor, was to take place the next day, the 25th; but the council were opposed to doing anything in that direction, and refused to take any action. On Wednesday, the 25th, a committee of trainmen waited on the superintendent of the Delaware, Lackawanna and Western railroad, and informed him that no trains would be allowed to leave, except the engine with a mail car. The superintendent asked the mayor for a force to protect the trains, but the regular police force of the city had been reduced to ten men, which was entirely insufficient, and the superintendent was advised to run the mail cars for the present, and not undertake to move regular trains until more assistance could be got, which advice was finally followed.

On the 26th of July the miners of the Lackawanna Iron and Coal Company held a meeting at the Round Woods, at which from six thousand to eight thousand persons were present, and a committee was appointed to confer with the general manager in regard to wages, and the crowds began to gather in the streets. The mayor called an advisory committee of seven of the leading citizens on Thursday morning, the 26th, and it was agreed to raise and swear in a special police force of the citizens, to act during the emergency, which arrangement was carried out, and quite a number of them raised that day and placed under the command of officers who had seen service in the army. A room was procured at the company store, as it was called, for this special force to meet and organize in, and meetings were held and necessary arrangements made to meet any emergency.

The miners had resolved to quit work and not allow the mines to be

pumped, and there was great danger that they would be flooded and immense damage inflicted. On Sunday, the 29th, the authorities met a committee of the miners and represented to them that the damage of flooding the mines would—a great portion of it—fall on them, as the mines could not then be worked for a long time if once flooded, and it was finally concluded that the pumps might be worked, so that on Monday the pumps were generally going again. On Monday the city council met and resolved that no necessity existed for special police, and that none would be paid by the city. The mayor on that day sent for the executive committee of the trainmen, and informed them that on Tuesday, the 31st, it was proposed to start the regular trains at nine, A. M., and if resisted the mayor would use all the force at his command to put the trains through. In the afternoon the trainmen had a meeting and resolved, by a large majority, to resume work, and by evening of that day all fears of any further trouble had passed. The special force of citizens which had been sworn in were armed partly with Remington rifles and partly with muskets, and it was arranged that they should assemble at headquarters on a given signal through the church bells. Wednesday morning, August 1, a meeting of the laboring men of the vicinity was held at the silk works, a mile or so below the city, at which some seven thousand or eight thousand men were present. Accounts conflict as to the purpose of this meeting, some contending that it was called to hear a report of some committee, and some that no object was specified in the call, which was by word of mouth from man to man. No committee made any report, but a letter was read by some demagogue, purporting to be written by W. W. Scranton, general manager of the Lackawanna Iron and Coal Company, saying that he meant to have the men at work for fifty cents a day, and when they died bury them in a culm pile. Mr. Scranton denies having written any such letter, but it answered the purpose of its author by inflaming the minds of those at the meeting, and they broke up with the cry, "let us clean out the company's shops." About half-past ten, A. M., the mayor was informed that a crowd of men was coming up from the silk works. The mayor, with a friend, started out to see what was the trouble, and on his way notified some of the special police to meet at headquarters.

On arriving at the corner of Lackawanna and Washington avenues, they saw a crowd of from three to four thousand coming up the latter street, and swarming about the machine and other shops, and about the railroad. The mayor went down into the crowd, which opened for him, and he went as far as the machine shop, and turned and came back to the roadway of the Delaware, Lackawanna and Western shops. He had said to them: "Boys, you are doing wrong; you must disperse and go home." On arriving at the roadway, a company of one hundred and fifty or two hundred, who had been driving the men from the shops, and beating and maltreating them, came along, and the leader asked who that was. On being told it was the mayor, he said, "kill the son of a bitch; he has no business

here," and immediately two shots were fired, and the mayor was struck between the shoulders by a club, or some heavy weapon, so hard as to cause hemorrhage of the lungs; a stone struck him in the small of the back, and several persons struck him with sticks. Several friends gathered about the mayor, and Father Dunn, a Catholic priest, came along to assist him. He was slipped out under the railroad bridge and toward Lackawanna avenue, followed by the crowd. The mayor had, before entering the crowd, given orders to have the signal given for the assembling of the extra police force, which order had not been executed, but word had been passed to a number of men, and when he got back to the avenue he saw a body of them coming down towards him. At this point the mayor was hit by some heavy instrument, which broke his jaw and knocked him senseless for a time, but he went a short distance down the street and back again to where the mob and extra force of citizens were just about to meet. The mob, on leaving the machine shops, had cried out, "Now let's clean out Lackawanna avenue," (the principal street of the city.) "Let's clean out the town." The force of citizens—about fifty in number—were passing Washington avenue just as the mob came up it and struck Lackawanna avenue, and they closed in behind the citizens and on both sides of the street around them. Then a large number of stones and other missiles were thrown at the special police, with cries of "Kill them; take their guns from them," and similar threats, and shortly two or three pistol shots were fired by the mob, and then the order was given to the citizens to fire, which was immediately done, and three of the ringleaders killed the first fire. This dispersed the mob, which fled in every direction. The citizens gathered again at the company store to the number of two hundred, and a policeman soon reported the crowd gathering again.

The mayor, at the head of twenty-five of his men, immediately went to the crowd and ordered them to disperse, which order they obeyed. This force of citizens kept up their vigilance, not allowing any crowd to gather until the troops arrived on August 2, and took charge of the military affairs at that place. A great deal of ill feeling and dissatisfaction still existed among the miners and mill men, but no open outbreak occurred, and before the troops left that section quiet and order was fully restored. Too much praise cannot be awarded the mayor and citizens' special police force of Scranton for the admirable organization they created, and for the prompt and vigorous measures taken when the emergency arrived. Riotous demonstrations were made at several other points in the State, but none of them assumed any great magnitude, except at Altoona and a few places in the anthracite coal region.

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The causes which led to the riots are, in the opinion of your committee, as follows, to wit: The riots grew out of the strike of the railroad men, and the strikers themselves were the protest of the laborer against the system by which his wages were arbitrarily fixed and lowered by his employer

without consultation with him, and without his consent. There are many other causes that combined to bring about the strikes, but the cause mentioned underlies the whole question, and it is the foundation of all the trouble.

Instead of capital and labor working together in harmony, as their community of interests would dictate, a conflict has been growing up between them, which, if not averted or discontinued, will lead to more serious troubles than any that have yet occurred, and which must result, as all such conflicts do, in the defeat of the labor interests, and in consequence thereof placing labor at a still greater disadvantage than it now occupies. This conflict has been engendered and kept up by demagogues, who, for their own advantage, seek to control the votes of the laboring men for base and partisan motives, and who, in order to more surely secure their ends profess to be the only and true friends of the laborer and persistently misrepresent the capitalist. It is much easier to move a body of men (which, like a large portion of the laboring class, has but little time to investigate the problem of the true position of labor and capital towards each other) by appealing to passion and prejudice, and in this respect your demagogue knows the material he has to work upon and allows no scruples of either honesty or modesty to restrain him. He is the leading spirit in organizing and keeping up so-called labor organizations of one kind or another, and which organizations, as heretofore managed in this country, have never resulted in any advantage to the men in whose ostensible interests they are gotten up, but, on the contrary, have inflicted untold damage on them. The demagogue likes to be appointed to some position in the labor organizations, and is not slow in suggesting a traveling agent or lecturer, with some supposed duty, where he can travel about the country, living at his ease on the fruits of the hard labor of his comrades, and spending freely the money that is as freely furnished him.

Why cannot the laboring men of the country see through the flimsy disguise of these men, and look at them as they are, the leeches of vampires who prey upon the life-blood of the interest they profess to befriend? There are men in all parties who have, or claim to have, some reputation as statesmen, who are not above the arts of the common demagogue, and who seem at times to be running a race with him to see which can stoop to the lowest tricks to secure the votes of the dear laborer. By the efforts of these men, and the tricks they practice, this conflict has been brought on. But the capitalist himself has not been blameless; instead of, in the common phrase, meeting his workmen half way, and trying to come to a fair understanding with them, he has put himself on his dignity, and has placed all the blame of the results brought about by the demagogue upon the laborer himself. He must remember that the laborer is human, with hopes and aspirations as well as passions and prejudices, and that it is much better to cultivate the former by fair, frank, and courteous treatment, than to inflame the latter by the opposite course. The laborer believes, as

he has a right to believe, that his wishes should be sometimes consulted, and that he should be recognized as one of the parties to the contract, and as such, fully consulted whenever the same is to be changed or abrogated. We believe it is in the power of the capitalist who is an employer of men, by fair, frank, and just treatment of his employés, not only in the immediate question of wages, but also in looking after their social and educational interests, to completely undermine and destroy the occupation and influence of the demagogue spoken of, and create that mutual trust and friendship which ought to exist between labor and capital, and thereby put an end to the frequently recurring strikes which inflict such serious damage on the business of the country, and do no man or set of men the least particle of good.

Many instances of the favorable results following such action might be given, but we will only refer to one instance, which occurred in Yorkshire, England. Titus Salt, whose father was a woolen manufacturer at Bradford, in Yorkshire, at the age of twenty-one years, started out in business for himself, by hiring a small mill and one or two men, who, with himself, did the work of the establishment, and so diligently and wisely were his affairs managed, that in a few years he found himself doing a successful and rapidly increasing business, and by a lucky discovery of the value of the wool of the Alpaca sheep, and its manufacture in dress goods, he soon acquired a fortune. This necessitated the enlargement of his mill, and to do this the more conveniently, he moved some two miles from town and erected a large manufactory, in which he gave employment to some four thousand operatives. Having been a laboring man himself, he knew the needs and wants of the laborer, and he accordingly erected neat and convenient cottages for the use of his employés, which were rented to them at a moderate rental, with the privilege of buying to those who were able, thus assisting them to procure a home of their own, and giving them a substantial interest in the success of the business they were employed in. He also caused to be erected churches which all could attend, and also schoolhouses, wherein every child could receive a good and thorough education. A public park was laid out and completed, bath-houses built, and clubs and lyceums established, Mr. Salt taking the lead and encouraging his people to carry out and sustain these institutions. In a short time a thriving town was built up, which was named Saltaire, in honor of its founder, and here the laborer has an opportunity to enjoy himself like other human beings, with no thought of occasion for strikes, the employer or capitalist and employés all feeling a common interest in the fortunes of their place, and with none of the jealousies or prejudices now commonly existing between these two classes. Mr. Salt has been created a baronet, but this can add no additional honor to the name of a man who has successfully solved the problem of the true relations between labor and capital, and who has taught the capitalist to what noble duties it is possible to devote himself, and the laborer, that the barrier between the sympathies of the

master who employs and overlooks, and the man who works, may be broken down in other and better ways than by hostile combination. Such a town as Saltaire, with its neat cottages, pleasant parks, clean streets, fine churches and schools, where labor is respected, and intemperance banished, is a better monument than any made of marble or stone, and will perpetuate the name of its founder more surely and completely than if he had made a fortune by grinding down his human help to the last farthing, and then on his death-bed bequeathing it to some public institution.

The immediate cause of the first strike which took place in Pennsylvania, in July, 1877, to wit: That at Pittsburgh, July 19, was the order by the Pennsylvania Railroad Company to run "double-headers" from that place to Derry. This order of itself, had there been no previous reductions of wages or dismissals of men on account of the depression in business, would probably have caused no strike, but following so soon after the second reduction, while the ill feeling engendered thereby was still having its effect on the men, together with the spirit of independence and probably recklessness which was brought about by the organization of the Trainmen's Union, with its general plan for a strike on the 27th of June, and the feeling of uneasiness and dissatisfaction existing among the laboring men of the company generally, caused by the want of labor and the low price thereof as compared with a few years previous, all together combined to set in motion this strike, which was followed by results so disastrous as to be forever memorable in the history of the State, results unforeseen and unanticipated at the commencement by the actors therein. The few trainmen who refused to take out the freight trains on the morning of July 19, while not intending or wishing to cause any destruction of property or loss of life by their action, still cannot escape the primary responsibility of the fearful scenes enacted at Pittsburgh during the few following days. The order which the railroad company made was one it had a right to make, and if the men did not wish to work under the order, they had a right to refuse to do so. So far there can be no question among reasonable men. The order having been promulgated several days before it was to go into effect, gave the men plenty of time to consider its effect, and if they did not wish to go out on double-headers, fair treatment would have dictated that they should have given the officers of the company reasonable notice of their decision prior to the time at which the order was to take effect; but this did not comport with the intentions of the men. They not only did not intend to work themselves under that order, but they did not propose to allow those who might be willing to accept service of the company on the double-header trains to do so, and when they combined together and raised their hands to prevent other men from working, they committed an act for which there can be no excuse.

It was hard for them to see not only their wages cut down, but also to see an order issued, which, if carried out, would result in the discharge of one half of their number, at a time when work was not to be had, but this

does not justify, and cannot excuse their interference with the right of a corporation to take such measures as it may think most beneficial for its own interest, so long as it does not interfere with the rights of others, and especially can it be no excuse for one man, or set of men, who do not wish to work under certain regulations, to interfere with those who are willing to do so. The property of all citizens must be protected, and the laws must be enforced, and those who undertake to interfere with the one, or stand in the way of the enforcement of the other, must learn, however severe the lesson, that these things cannot be tolerated in a land of liberty and of law, and that however much trouble and expense they may succeed in inflicting on the subjects of their spite, in the end law and order will triumph, and those who stand in the way are those who suffer the most.

Every violation of law, if suppressed or punished, is done so at the expense of the community where the violation occurs, and the greater the violation the greater the expense. This expense must be met by taxation, and as taxation is so arranged as to reach every member of the community, the result of this, therefore, is that the person who creates a disturbance or commits a crime which requires the intervention of the officers of the law, is forced to pay from his own pocket a portion of the expense incurred in its vindication.

The practice of a little arithmetic ought to convince any one that violating the law is a very expensive luxury, besides bringing him into disgrace and subjecting him to a penalty. This argument is not intended for the professional criminal, as it is not expected that he can be reached by any argument, but it is hoped that it may reach those who usually intend to be law-abiding citizens, and whose fortunes are affected by the good or evil fortune of the community in which they reside, and that this class may be induced to pause and consider before they attempt to use unlawful means to redress any grievances, however great it may seem to them. The destruction of property, although it may belong to a corporation, results in a direct loss to the labor of the country. It is conceded that all property and capital is created or produced by labor, and, therefore, any absolute loss, by the destruction of either, must, in the end, fall upon the laborer. The argument sometimes used, that if property is destroyed its replacement gives employment to the laborer, and that, therefore, it is a benefit to him, is fallacious, for the reason that the capital necessary to pay for the reproduction of the property destroyed must be originally created by labor. The capitalist who loses his property by fire is much less able to furnish employment than he was before, and if this destruction overtakes the property of a whole community, capital to replace what is lost must be drawn from some other locality by borrowing, and while times may seem prosperous during the time the rebuilding is being done, yet there has been an actual loss to the community, which, sooner or later, must be felt. The draining of capital from one place, to any great extent, causes its loss to be felt there, and there is no way in which the

destruction of property, in one place, can be made good there, without the loss being felt somewhere, and in the end most fully and completely realized at the locality where it occurred.

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It may be expected that an opinion will be given as to whether or not the Pennsylvania Railroad Company were justified in making the reduction in wages of ten per cent. on June 11, 1877, and, ordinarily, the question might be answered that this, or any other corporation or individual has the right to pay such wages as it or he pleases, and to require such services for the money paid as it or he may choose. This rule must be received with considerable modification, in the case of a great corporation, receiving special privileges from the State, and employing thousands of men, scattered from one end of the State to another.

If such corporation should execute a written contract with all of its employés on taking them into its service, specifying, fully and particularly, the hours and service required from them, the length of time for which each was hired, and the causes for which he could be discharged, no one would claim that they could vary the terms of that contract, without the assent of the employé. From the manner of the employment of the railroad employés in this country, and especially of the trainmen, there is in good faith an implied contract that the employé shall continue to receive the wages the company is at that time paying for the particular duty which he discharges, until the price is changed by mutual consent, and that his term of service shall continue as long as he behaves himself well and performs the services required of men in his position. This ought to be, and is in equity the implied contract between the parties, although not legally enforceable. But the railroad employé has a right to expect such treatment by the company into whose employ he enters. He is required to be on hand whenever called for, to give his entire attention to the business of the corporation, and he settles down with his family in such place as will make it most convenient for him to attend to the business of the company. His whole services are theirs, his arrangements are all made with reference to their business, and when he is discharged, without any reasonable cause, without any prior notice, or his wages reduced while his labor is not reduced, and, as is sometimes the case, increased without his consent, and the order for that purpose made without consulting him in any manner, he has a right to find fault. He is like a soldier, whose whole time has been spent in the service. His occupation is more dangerous than that followed by others, and the kind of services he has to perform unfits him for other duties, and railroad officers should always take these facts into consideration in dealing with them.

The wages of the trainmen, after the reduction in June, 1877, were as follows, to wit: Freight conductors: first class, two dollars and twelve cents per day; second class, one dollar and ninety-one cents per day; brakemen, one dollar and forty-five cents per day, and the day's work averaged

from seven hours and twenty-five minutes, the shortest time, to eight hours and thirty-five minutes, the longest time. These wages were good wages for the amount of labor performed per day, and if the men could make full time, would amount to thirty-eight dollars and seventy cents per month for brakemen, and fifty-five dollars and twelve cents for first-class conductors. This was higher wages than the same class of men could get in other employments, and seemed to be, as stated by the president of the Pennsylvania Railroad Company, some twenty per cent. higher than the wages paid in other lines of business, the company intending to keep the wages of its men about so much more than is paid in other occupations, on account of the risk taken by the trainmen. It is claimed by the railroad officials that the depression in freight traffic on the railroads, both in amount and in price, required a consequent reduction in the expenses of the railroads, and the reduction of June, 1877, they asserted to be justifiable, under all the circumstances, and it is the opinion of your committee, that, if before it had gone into effect, the men had been made fully acquainted with the reasons for the step taken, and the necessity of it, in short, treated as if they were reasonable men and entitled to consideration, very much of the dissatisfaction would not have existed, and the country might possibly have been spared the troublous scenes through which it passed at that time. No doubt the fact that a strike of the trainmen of the Baltimore and Ohio railroad had taken place at Martinsburg, West Virginia, on the 16th of July, and was gaining strength and headway, had its influence in determining the trainmen of the Pennsylvania railroad, at Pittsburgh, to commence their strike at that place, and, in consequence thereof, a much less grievance was needed than would otherwise have sufficed, as an excuse for their action. The fact, also, that the trainmen on other railroads were rapidly following suit, and stopping the running of freight trains on such roads, encouraged the men to persist in their course to stand out and prevent, by force, trains from being run on the Pennsylvania railroad.

There seemed, at this time, to be an epidemic of strikes running through the country, not only among the railroad men, but among all classes of laborers, and this helped to precipitate and bring about strikes at all the places about which this report will treat. The general feeling of uneasiness existing among the laboring classes of the country before mentioned, and the sympathy felt by these classes for each other, made them very susceptible to anything which affected their fellow laborers, and, to use a medical phrase, the labor system was in a good condition to receive the epidemic which was spreading over the country, and in a very poor condition to resist and throw off the disease. The strike once inaugurated at Pittsburgh was strengthened and encouraged by the sympathy the strikers received from nearly all classes of the citizens, and more especially by the sympathy shown by the city officials. Had the community frowned on the attempt of the strikers to prevent, by force, the running of freight trains, as it should have been done, and had the civil authorities shown a

firm determination to enforce the law at the outset, as it was their sworn duty to do, there can be no doubt but the mob would have been dispersed without bloodshed and riot, as it was in Philadelphia, Scranton, and other places. Philadelphia and Scranton are particularly mentioned, for at these places there is a much larger proportion of the turbulent class than at Pittsburgh, and, consequently, a great deal more of the material of which riotous mobs are composed. When any community winks at a small violation of the law, by any person, and more especially by a combination of persons, it is laying the foundation for trouble and difficulty. A crowd of people assembled for the purpose of accomplishing, however worthy, a purpose in a questionable manner, is very easily converted into a riot, and when a crowd proposed to carry out an unlawful object by violence, it soon becomes an uncontrollable mob, if encouraged in its purpose by the sympathy, either expressed or passive, of the community and the civil authorities. The small show of force made by the police in the spasmodic manner, on July 19 and 20, was worse than if no police force had ever appeared on the ground, for the strikers knew they had nothing to fear from them, and the lawless characters, who had begun to gather around, construed this action as a sort of license to do what they choose as long as they interfered with nothing but railroad interests.

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The prejudice among the shippers over the Pennsylvania railroad against that company on account of the alleged discrimination in freight against them, caused them also to sympathize with the trainmen, and the general feeling was, after the commencement of the strike, to let the company take care of itself. No one can doubt that the existence of this feeling in the community was well known to the strikers, and that it encouraged them to hold out in their purposes and make them more bold in their adoption of measures to resist the company, and prevent by force any freight trains from leaving Pittsburgh.

This feeling of boldness and confidence in disregarding the law communicated itself to the new comers in the crowd, many of them being the worst criminals and tramps, until the mob became so confident that they could do as they pleased, that they did not believe any serious attempt would be made to disperse them, until the railroad company had yielded to the demand of the strikers, and that if such an attempt should be made they could easily repel it. None of the citizens had the remotest idea that the strike would culminate in any serious riot or destruction of property, neither did the strikers themselves expect this would be the result, but the resistance to law once started, the original movers soon lost all control of the movement, and the consequences were such as to astonish the most reckless among them. No one could have forseen the result, and the experience of the people of Pittsburgh, with strikes prior to that time, had not been such as to lead them to anticipate anything serious in this case. There being many manufacturing establishments in and around

that place, employing a large number of men, strikes were quite familiar to them, but as they were usually confined to the men of one establishment, or one branch of trade, they were arranged without serious disturbance of the public peace, and no one realized the danger in winking at the course of the strikers in this case. No strike had ever before taken place under such favorable circumstances to make trouble. Never before were so many of the resident laborers out of work, never before was the country so filled with tramps to flock to such a scene of disturbance, never before was the laboring class of the whole country so ready to join in a move of that kind, and never before were the civil authorities of the city so utterly incompetent to deal with such an outbreak, or if not incompetent, then criminally negligent, in not making an earnest effort to enforce the law. The railroad riots of 1877, have, by some, been called an insurrection, for the reason that strikes occurred at nearly the same time on several of the main trunk lines of the country, that several Governors of States issued proclamations warning the rioters to disperse, &c., some of them calling on the President of the United States for troops to assist the civil authorities in dispersing the mobs and enforcing the law, and the large number of men engaged in these troubles in the different parts of the country. Insurrection is defined to be "a rising against civil or political authority; the open and active opposition of a number of persons to the execution of law in a city or State; a rebellion; a revolt."

The railroad riots in Pennsylvania were not a rising against civil or political authority; in their origin were not intended by their movers as an open and active opposition to the execution of the law. Most of the riots were the result of the strikes by a portion of the railroad men, the strikes being intended to bring the railroad officers to a compromise with the strikers, of the differences between them. In some places the men merely proposed to quit work, and not interfere with the running of trains by any men the railroad authorities could get; in other places they would not allow other men to work in their places, nor railroad officials to send out freight trains, if in their power to prevent. It was in no case an uprising against the law as such, but a combination of men to assert an illegal right as between them and the railroad company. There was no organized movement throughout the country, no pre-arranged plan of the trainmen to prevent the running of freight trains by violence or combination, understanding or agreement between the men on any one railroad and the men on another. Each strike was independent of those on other roads, each having a local cause particularly its own. As before stated, there was a sort of an epidemic of strikes running through the laboring classes of the country, more particularly those in the employ of large corporations, caused by the great depression of business, which followed the panic of 1873. by means whereof many men were thrown out of work, and the wages of those who could get work were reduced to correspond with the reduction in the prices of all commodities and the reduced amount of business to be done.

Each strike, except at Reading, although commenced originally by men then at work for a railroad or some other corporation, to carry out their own purposes, was soon joined by all the idlers and vagabonds in the vicinity, and these being by far the largest in number, soon took the movement out of the hands of the originators and carried it clear beyond anything they ever anticipated. The vagabonds having no object but plunder, and having no particular interest in anything else, were ready to resort to violent measures to accomplish their object.

The immmediate cause of the strike at Pittsburgh was not similar to any other that has come to the knowledge of this committee, it being the order to run double-headers. No such cause existed anywhere else, and, therefore, the troubles there could not be considered as a part of any general understanding between trainmen. At Reading the railroad men were not engaged in any strike, nor did they take any part in the riots there. The troubles there were caused solely by idle men, who had some time previously been discharged from the employ of the Philadelphia and Reading Railroad Company, and for the purpose of venting their spite on the company. At Scranton, although there had been a strike of the railroad men, this had been adjusted, and the men were at work again when the riots occurred, the riots being engaged in by the idle men and striking miners and mill men. If a riot, growing out of any of these isolated movements, is to be called an insurrection, or if these movements, altogether, are to rise to the dignity of an insurrection, then the word must be given a new definition, for as it now stands there must have been some preconcerted arrangement between the men at the different points, to resist the laws of the country, or the move at some point must have been for the purpose of resisting constituted authority, and not the mere purpose of forcing railroad companies, or any other corporations, to come to terms with the strikers, by obstructing the business of the railroad or other corporation. No preconcerted arrangement of any kind has been proved before your committee, although such persons as might be supposed to know the fact, if it existed at all, were subpœnaed and testified before us, and all of them positively deny that there was any concert of action whatever, among the trainmen, for a strike after the 27th of June, and a local cause for the different strikes in Pennsylvania is given by them all. It has been asserted by many that no rioting or destruction of property would have taken place at Pittsburgh if the troops had not been called out and had not fired on the mob. The trifling with the mob at this place by the civil authorities, and the sympathy shown by the citizens, with the original strikers, had emboldened and encouraged it to such an extent, that when the Philadelphia troops arrived on the ground, it had, no doubt, got beyond the control of the civil power, as then constituted, and there can be no doubt of the necessity for the presence of those troops. Such mobs as that at the Twenty-eighth street crossing, on Saturday evening, July 21, at the time the Philadelphia troops were marched out there, would never have dispersed without making serious trouble, troops or no troops.

How long it would take a mob to disperse and melt away of its own accord, which, on Thursday, numbered from fifty to two hundred men, on Friday from five hundred to fifteen hundred, and on Saturday from two thousand in the morning to seven or eight thousand in the afternoon, and which was growing all the time more turbulent and excited, we leave for the advocates of the do-nothing policy to determine if they can. The firing on the mob by the troops, and the subsequent inaction precipitated and aggravated its action, but did not create the riots. When a great line of public travel and traffic like the Pennsylvania railroad is blockaded by a mob, the public interests suffer more than the railroad interests, and every day that it is allowed to continue, damages the community to the extent of thousands of dollars, and it was the duty of the local civil authorities to adopt the most vigorous measures to break the blockade, but if, instead of doing this, they temporized with the mob until, in consequence thereof, it becomes too strong to be suppressed by them, and the troops of the State are called on for assistance, the latter cannot be said to have caused the riots, or held responsible for the consequences of an honest effort to enforce the law. If the rioting was caused by the calling out of the troops, and their subsequent actions, then the claim that that was an insurrection falls to the ground, and if there was an insurrection, then the troops cannot have been the cause of the rioting, as the two positions are inconsistent, although held and advocated by a number of prominent men."

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The courts having decreed that Allegheny county was liable for all losses sustained during the Pittsburgh riots, the county officials at once proceeded to adjust all claims and settle them upon the most advantageous terms. From a statement obtained from the county controller's office, the following shows the amount of liabilities, their adjustment and payment up to date:

Total amount of claims as presented, to date, ...	$3,592,789 33
Total amount paid by compromise and judgments, to date,	$2,765,891 89
Expenses of riot department, to date, ...	11,142 96
Estimated claims outstanding and unpaid, ...	10,000 00
	$2,787,034 85

Although men resumed work in accordance with the prescribed regulations and terms of the railroad companies, and the military forces had succeeded in restoring peace, thus opening the railroads for public traffic, strikes against a reduction of wages or the restoration of former rates in other occupations continued. Conspicuously so were the miners and laborers in the Lackawanna region, who were asking for an advance. Troops remained and were stationed throughout the valley to guard the various coal works from destruction by lawless strikers. During the month of August the entire district was at a stand-still. The situation at times being critical, as threats were being made by some to flood the mines, while several riotous disturbances took place near Scranton, which were quickly quelled by the troops, a special company having been organized in that city. It was estimated that

the idle men numbered from six to ten thousand. On the 28th of August they assembled in mass-meeting, and resolved to continue the struggle until the companies would advance their wages. Early in September a deputation of ten striking miners visited Mr. Sloan, president of the D. L. & W. R. R., at New York, to talk over matters, and, if possible, adjust their differences, but no agreement was effected, and the strike prolonged. About the 1st of October another conference was held between the miners and President Sloan of D. L. & W. R. R., Dickson of the Delaware and Hudson Canal Company, and Hoyt of the Pennsylvania Coal Company. Propositions were made, which were afterwards submitted to a council of the men, who, by a vote of 114 for, to 1,262 against, again refused to go to work. This action thoroughly disgusted the officials of the companies, and they resolved to make no further efforts to bring about a reconciliation. Long idleness and consequent suffering, had, however, by this time, driven many to the direst extremities, and they began seriously to deliberate upon the propriety of discontinuing the struggle and returning to work. On the 13th of October a break was made, when the men of the Pennsylvania Coal Company, Susquehanna and Wyoming Coal Company, and the Lackawanna Iron and Coal Company resumed work. Upon the succeeding days other collieries were started, so that by the evening of the 17th the resumption was general at the old rates, and the strike, which lasted for three months, was at end.

The miners representing the Monongahela and Youghiogheny river district held a meeting on the 7th of August, at Pittsburgh, and resolved: "That the miners of the rivers and railroad mines demand three cents a bushel of seventy-six pounds. That each pit have a checkweighman, and that they be provided with a seventy-six pound weight. That labor be restricted to fifty bushels and eight hours per day. That their wages be paid in cash every two weeks." The strike continued until October 9 when the operators along the Monongahela and Youghiogheny rivers agreed to give the miners the price demanded, and they went to work.

August 11 the laborers employed at several rolling-mills in Pittsburgh and Allegheny demanded an advance in their wages from $1 12 to $1 25 per day. While the demand was conceded in several mills, the American Iron Works refused, and, as a result, a strike commenced that continued for eight weeks, when a committee of the Amalgamated Association conferred with the strikers and prevailed upon them to go to work, which they did, at the old wages. These works employed about two thousand five hundred persons who were affected by the strike.

On the 2d of November the carpet weavers employed at Thomas Taylor's factory, Philadelphia, went on strike against a proposed reduction of one and a half cents per yard. In a few days he offered to compromise by making the reduction half a cent, clear of winding, on "fines" and to pay a half a cent more than had been paid on "supers" having shaded ground figures or other difficult work, which proposition was also refused. During the month the employés of other mills united in the strike for the same

reason, while a number continued operations as usual. On the 4th of December it was reported that out of one hundred and seventy-six shops only five were working at reduced rates, and in these the manufacturers concluded to resume at former prices.

1878. March 13 the lasters employed at Gardner and Elkins, shoe manufacturers, Philadelphia, went on strike against a reduction of ten per cent. in their wages, which threw about one hundred hands out of employment. On the 18th the employers withdrew the order, and work was resumed at old prices.

On the 27th of May the miners of the Monongahela valley went on strike against a reduction from three to two and a half cents per bushel. They resumed work June 3 on the terms offered by the operators.

Scott & Co., of Moore's station, Connellsville road, on July 9 notified their miners that they would not pay more than two cents per bushel for mining coal, against which reduction the men struck, but after being out a few days the operators withdrew the order and work resumed at the old rates.

A strike against a proposed reduction of from ten to fifteen per cent. was engaged in by the employés of the Ripka and the Canton mills, Manayunk, Philadelphia. The former, after three weeks' idleness, resumed July 31; and the latter, who had been out six weeks, on the 28th, at the reduced rates.

The employés of the Buck Mountain colliery, Shamokin, Northumberland county, who were engaged in a strike for an advance of ten per cent. in their wages, resumed work July 14, after a few days' idleness, on operators' proposition to compromise on five per cent.

About the middle of August, the employés of Messrs. Shirley & Rommel, shoe manufacturers, Philadelphia, went on strike for an advance of twenty per cent. in their wages, but, after several conferences with their employers, a compromise was effected. The men agreed to accept an advance of ten per cent.

On the 15th of August, the proprietors of the iron and steel-mills of Philadelphia met in convention, and agreed to reduce the wages of their employés in the following manner: The puddlers from $4 25 to $3 60 per ton; the rollers, forty per cent.; the roughers, twenty-five per cent.; the heaters, thirty per cent.; the engineers, ten per cent.; and the laborers from $1 40 to $1 10 per day. To this the men objected, and went on strike. On the 5th of September, the Philadelphia Iron and Steel Company endeavored to start their twelve-inch mill with new hands, but the strikers, who had congregated in great numbers, threatened such as would attempt to work with violence. Ineffectual efforts were made for three consecutive days to start the mill. More new men were introduced, and, under the protection of the police, the company succeeded by the 18th instant in starting the twelve-inch mill with one heater, a helper, and two roughers. On the 1st of October, they succeeded in putting sixteen men to work, under a strong guard of police, and, before the 18th, forty-six non-unionists had been engaged, together with fourteen laborers, which enabled them to

start five puddling furnaces, three heating furnaces, and the twelve-inch mill. A few blacksmiths and engineers had also been engaged. Soon thereafter, the employés of Robbins & Son notified their employers of their willingness to go to work at the reduced rates, these were speedily followed by the workmen of the other mills, and thus terminated a strike of two months' duration.

In October, the flint glass-blowers and workers of Pittsburgh submitted a proposition to the owners, designed to regulate the production of ware. It was asserted that some factories secured more for a day's work than others, the wages paid in each being the same. The object of the workmen, it was alleged, was to establish a uniform number of pieces to be made each day in the several factories, and, with a view to establish such regulations, the proprietors were invited to a conference, which met with no response, and work continued as before. Some minor troubles occurred over the use of molds in the making of ware by one firm for the accommodation of another, which, in conjunction with other matters, induced the manufacturers on November 8, to agree upon, and issue the following circular:

"In order to remove all cause for misunderstandings and unpleasant disputes which have been very frequent of late in regard to the number to be made for a "turn's" work, and also in regard to our manner of conducting our business, which is unquestionably our own affair, and not that of our employés—

"We hereby give notice, that we will hereafter pay pressers, finishers, gatherers, and handlers by the hundred, and require five (5) hours work for a turn;

"That we will make such articles as our trade may demand, and work such molds as we desire;

"We will employ or discharge as may be for the best interest of the factory, and will not submit to dictation in any form;

"We will expect you to give us a definite answer as to your action in the matter by Thursday, November 14, 1878."

By the terms of the above, all hands were to be paid by the hundred, a custom that had not been heretofore observed so far as the gathers were concerned. This, and the number of hours fixed for a turn, (half day,) was all that was involved, there being no question of wages in dispute. To the regulations prescribed the men would not agree, alleging that they were arbitrary and uncalled for, and, as a result, eleven table-ware factories suspended. No effort was made to compromise upon either side, and thus the "lock-out" continued until the beginning of February, when two of the factories started with new hands, many of whom had never been in a factory. Others soon followed with the same class of men, in addition to a number of the old hands, who returned to their positions. The strike, however, continued until August, 1879, when the old hands consented to go to work upon the conditions laid down by the manufacturers. During this strike four new factories were started, the one at Beaver Falls being built principally by glass-workers and operated upon the coöperative plan.

On November 7, a notice was posted at several mills in Kensington, Philadelphia, including those of Bromley Brothers, John Bromley & Sons, Thomas L. Leedom & Co., James Kitchenman, James H. Gay, Dornan, Brothers & Co., and Ivins, Dietz & Magee, to the effect that their power-loom weavers must accept a reduction of one cent a yard. The standard Philadelphia prices for power-loom carpet weaving was from $5\frac{1}{2}$ to 6 cents a yard, which would be reduced by the above proposition to $4\frac{1}{4}$ and 5 cents. The notice of a reduction was fully expected by the power-loom weavers, as the hand-loom weavers submitted to a reduction three weeks previous, but they did not expect it to exceed one half cent a yard. The women, who composed four fifths of the number, determined at once to strike, and were followed by the men. The strikers in all numbered four hundred and twenty-five. The employers notified their hands, December 20, that if they did not go to work by the 26th, that they would close their mills on them forever, and would bring eastern labor to fill their places. The strikers held a meeting on the above date and resolved not to go to work. The mills were opened upon the day named, when large crowds of working-people congregated, and a number of policemen were stationed in the neighborhood of the factories, but their was no disturbance. Very few of the old hands availed themselves of this opportunity to go to work. The following day forty-one went to work in six mills, around which were stationed seventy policemen. The strikers congregated in small knots of a half a dozen each, but were quickly dispersed by the police, who kept guard and accompanied the new hands to their homes. John Bromley & Sons, who already had twelve power-loom weavers at work, increased that number by twelve or sixteen more on December 30, by which time the police were given considerable trouble in preserving order and protecting the working hands. On Monday, January 6, 1879, twenty-eight of the old hands returned to work at Leedom & Co.'s mill. On the 10th one hundred and forty-six of the strikers had engaged to go to Patterson, New Jersey, to work, where the weavers had just finished a protracted but successful strike, many of whom had left for other cities during the strike. After remaining on strike for eleven weeks, the weavers returned to work at the reduction. The strike was controlled entirely by the girls, who conducted the meetings and dictated all policies, and were the assailants in all attacks upon those who yielded.

1879. Fifty-seven hand-loom weavers employed by John Hamilton, Montgomery carpet mills, Philadelphia, early in the month of February, through a committee, notified their employer that they had decided not to work unless they should receive an advance of one cent a yard for weaving, (from seven to eight cents a yard,) which was willingly agreed to. They then retired, but soon after returned, and demanded that the advance wages should be paid upon unfinished rolls, which was refused, and the hands were ordered to the office, there to receive the back pay due them, and that if they did not work for seven cents per yard,

they would be permanently discharged. After a suspension of two weeks, work was resumed at eight cents a yard.

In the beginning of March the hand-loom weavers of Kensington, Philadelphia, numbering about thirty-five hundred persons, who were employed in the ingrain carpet mills, inaugurated a strike for an advance of one cent a yard for weaving, making the price seven cents a yard. It was decided at a conference of the weavers held on the 3d of March, that only one mill should go out at a time, until all had received the advance. This step was followed, and by the 12th of the month the price demanded, or a compromise on a half cent had been effected, and the strike ended.

March 27, about one hundred employés of Shirley & Rommell's boot and shoe factory, which included lasters, heelers, shavers, edge-setters, heel-burnishers, and trimmers, went on strike for an increase of wages. The lasters demanded ten per cent. and the shavers thirty per cent. advance. A compromise was suggested, but was refused. Their full demand was finally granted, and work was resumed on the 29th instant.

On Monday, April 14, the employés of the Altoona rolling-mill were "locked out" for joining the Amalgamation Association of Iron and Steel Workers. On the 18th six puddling furnaces were started, the men renouncing the union according to the ultimatum of the president of the company. Many left the city, and the union, for the time being, was broken up.

On the 30th of April, the miners employed by the McIntyre Coal Company, Lycoming county, went on strike against a reduction of ten per cent. The strike terminated July 21, and all miners who were acceptable went to work. A large number were ejected, and left for other places as fast as they could obtain employment.

May 23, a committee representing hand-loom weavers and eight large firms of Philadelphia, met to confer upon the propriety of arranging a schedule of prices and advancing wages one half cent per yard for weaving. The great object sought was to have prices uniform, as there was a disposition upon the part of some to advance the half cent if all others would do likewise. A committee of ten weavers and ten manufacturers were appointed to prepare a schedule of prices, and, if possible, obtain the signatures of manufacturers not present. At a subsequent meeting, held on the 10th of June, it was developed that twenty-five of the largest mill-owners had agreed to the schedule, those refusing being principally small operators. An arrangement was effected to inaugurate strikes in those mills that refused, and, as a result, a large number on the following day were closed. Both weavers and manufacturers of the mills that were at work in accordance with the schedule, contributed to the support of those on strike. Just how long these strikes continued, we have no record, but accounts of future meetings of weavers and manufacturers show that the schedule was re-arranged every six months, which would indicate that the strike was a success.

The annual agreement between the iron manufacturers and puddlers of Pittsburgh and vicinity expired on the 31st of May. The latter, at a meeting held on the 17th instant, had unanimously agreed to demand a renewal of the scale, to continue, as heretofore, for one year. The manufacturers objected, and asked that the scale be modified, to which the puddlers would not agree, and, as a result, the mills stopped. On the 2d of June, a conference was held by representative committees of both sides, at which meeting the manufacturers proposed to submit the matter to a board of arbitration. This proposition the puddlers laid before a general meeting of the workmen of the district on the following day, which was rejected by them, and a resolution adopted, insisting upon the scale being signed or no work. On the 7th, the manufacturers held a meeting, and "*Resolved*, That, under existing circumstances, we deem it inexpedient to further resist, at the present time, the unjust demand of the boilers." And thus the strike was ended.

On July 12th, the molders in the employ of the Reading Hardware Company, numbering one hundred and forty men, went on strike for an advance of twenty-five per cent. in their wages, and a price list. Several attempts were made by the company to effect a compromise without avail, until September 3, when a proposition was offered, that an advance of fifteen per cent. should be made for the month of September, to be increased to twenty-five per cent. on and after October 1, providing the men resumed work before September 8, which was accepted by the molders, and work was resumed.

On the 25th of July, the employés of Mundel & Co., shoe manufacturers, Philadelphia, went on strike against a reduction of eleven per cent. On the 1st of August, a compromise was effected by the men accepting a reduction of six per cent. and going to work.

In the early part of September, the iron molders in the employ of Carr Crawley & Develin, Philadelphia, numbering eighty-five men, inaugurated a strike for an increase of wages of from a quarter of a cent to four and a half cents per mold. An offer of ten per cent. advance was refused by the men. Then an increase of from nine to twenty per cent. was proposed, and was accepted, which was practically equivalent to what they had demanded. An advance of ten per cent. was granted to all other employés, numbering about two hundred and fifty, in a short time thereafter.

October 2, the puddlers at Atkins Brothers' rolling-mill, Pottsville, who were receiving $3 25 per ton, struck for an advance of fifty cents per ton. They were idle about one month, when they returned to work at the old wages.

On the 13th of November, the miners of the Lehigh and Wilkes-Barre Coal Company held a meeting at Wilkes-Barre, and passed resolutions to demand an advance of fifteen per cent. in their wages, and appointed a committee to confer with the company, and also to notify those employed at other mines in that locality, with a view to a concert of action.

The company in reply offered the following: "The wages for the balance of the year, commencing November 1, and for the year 1880, shall be fixed upon the following basis: Taking three dollars per ton, the price of coal in New York by the company's circular, as the basis, an advance shall be made of ten per cent. from November 1, and a further advance of ten per cent. on any advance of the circular above four dollars per ton free on board at Port Johnson. Wages upon this advance to be computed on, upon the unit of one per cent. of every ten cents advance. It is further understood, that house rent, and coal for use by the miners shall remain at the same price as at present, and also all supplies of powder." The proposition, as above, was accepted by the miners.

On the 2d of December, the weavers employed at McKean & Raphael's cotton mills, South Easton, about three hundred in number, struck for an increase of ten per cent. in their wages, and a decrease of one hour in a day's labor, which was refused, and the strikers discharged as they left the mill, but on the 11th instant the proprietors agreed to pay the increase of ten per cent. for the present, and a further advance on April 1, if business warranted it, which was accepted, and work resumed.

* The Pittsburgh district of miners properly includes those working in all the mines on the Monongahela and Youghiogheny rivers, on the Baltimore and Ohio railroad as far as the Waverly mines, on the Monongahela division of the Pennsylvania railroad, on the Pan Handle, (Pittsburgh, Cincinnati and St. Louis railroad,) and its charters as far as Midway and Patins respectively, on the Little Saw-Mill run and Montour branches of the Pittsburgh and Lake Erie railroad, on the Pennsylvania railroad as far as Turtle creek, on the Allegheny Valley railroad as far as Plum creek, on the West Pennsylvania railroad as far as Bellview mines. All the limits above stated are included. Whenever the miners of any pit beyond these boundaries discriminate in wages against any of the employers within, it is made the duty of the officers of the Miners' Association to endeavor to persuade them to come under the rules and abide by the resolutions of the majority of the district.

In August, 1879, about the time the first rays of prosperty after the panic reached this region, the price for mining was two and a half and two and a fourth cents per bushel on the rivers and two cents on the railroads. The fires in the furnaces and factories were rapidly rekindled and a lively demand for coal set in. Mines that had prior to 1873 been the hives of industry, but since had been abandoned as profitless, were again started and soon absorbed all the unemployed mining labor. After long and much suffering in the extremes of the panic, it was but natural for the miners when the better times dawned to try to force up, in a few months, their wages faster than prudence and safety would warrant. They rapidly gathered the fragments of their broken pit organizations

*The historical sketch of the troubles that prevailed throughout the Pittsburgh district from 1879 to 1881, inclusive, has been kindly furnished the Bureau by D. R. Jones, Esq., of the Miners' Association of Western Pennsylvania.

these they roughly threw together into sections, these again into a tolerably compact district organization, so that during the latter part of August and the rest of the year 1879 we find them busily conferring, convening, and agitating for more privileges and wages.

On August 26, the river miners, in convention, decided to demand two and a half cents per bushel to be made the uniform price on the Monongahela and Youghioghenny rivers, on and after September 1. By August 29, the several sections of the railroad mines had obtained the two and a half cents per bushel for mining, and on this date they met in convention, to ask an advance to three cents, but upon learning from the delegates, that at a number of the mines the two and a half cent rate was not paid, they decided it wise to wait until one price was practically uniform before demanding a higher.

A general convention of the river and railroad miners had met at Pittsburgh, July 10, to discuss "Arbitration" as a means of settling disputes between capital and labor, which resulted in the convention selecting from the various sections, a committee of nine to see whether the employers would confer with them on the advisability of forming a Board of Arbitration. The committee addressed a note to the River Coal Exchange, on the subject, which was answered with the statement "that the Coal Exchange has never, as an organization, attempted to legislate in the matter of the personal business of its individual members, as they recognize the engagement of employees at their respective works to be." The railroad operators not being members of the River Coal Exchange, and not, as far as known, being organized into any similar body, through which they could collectively receive and take action on the subject, the answer did not, of course, indicate their views in one way or the other on the subject. For the time being the matter dropped out of sight, but not out of mind. Early in September, through the exertions of Joseph D. Weeks, esq., Secretary of the Western Iron and Steel Association, a few river and a considerable number of railroad coal operators, signified their willingness to appoint a committee from their number to meet a like committee from the miners for conference. On the 24 of the month, a general convention of miners, (both river and railroad) selected Edward O'Donnell, Thomas Gray, Louis Rener, John Fretwell, William Barker, Ephraim Rent, Ferguson Gates, James Kirk, and D. R. Jones, as their committee. About the same time the operators selected William A. McIntosh, president of the New York and Cleveland Gas Coal Company; Charles H. Armstrong, of the firm of Armstrong & Son; Alexander Patterson, of Patterson & Co.; S. McCrickart, Fort Pitt Coal Company; J. N. Bunton, of Joseph Walton & Co.; S. L. Wood, George Lysle, of G. Lysle & Sons, and Joseph D. Weeks, as their representatives. These two committees met on the 26th, at the rooms of the Western Iron Association, in the city of Pittsburgh, decided to form a "Board of Conciliation and Arbitration," and appointed a committee on rules. While this committee was at work constructing the machinery for

the board, the business of the country was booming—to use the word of the time—such a rapid change from adversity to prosperity, had excited and muddled men's brains. The Western Iron Association had, in less than two months, advanced its card prices for iron from two to three cents per pound, which gave an advance, according to the scale of fifty cents per ton to the puddlers. This buoyed the prices of the necessaries of life, a general rush for more wages followed, and naturally we find the railroad miners meeting on the 15th of October "to catch their share of the boom," and did so by making a demand of one half cent per bushel for mining, which the railroad operators promptly conceded.

On the 21st of October a general convention met at Pittsburgh, to discuss the rules for the board of arbitration, as reported by the committee, which, after being slightly amended, were adopted, and the representatives for the miners as required, were elected. A few days afterwards the operators held a meeting, concurred in the amendments, and selected their representatives.

On the 31st the full board met at the rooms of the Western Iron Association, elected William A. McIntosh, operator, president; John Beveridge, miner, vice president; Joseph D. Weeks and D. R. Jones, secretaries, and thus they became ready for business.

While these representatives of the two giant forces of the coal industry were around the arbitration board talking over a past full of strife and bitterness, it was found that both parties were really tired of strikes and lockouts, and that the desire to, if possible, avoid their recurrence in the future, was genuine and common. The success of the sliding scale in the iron trade suggested that something similar might benefit the coal industry, and it was unanimously agreed that the board proceed to devise a scale. But the representatives severally differed as to what should be its basis. The miners argued that "iron is king;" our coal is consumed in its manufacture; it is a business well conducted; it is a staple and an influential commodity, and the scale should be based on iron, and the price for puddling; while the operators contended that all our coal is not consumed in the manufacture of iron, but a great deal of it is used for other purposes, and in other States, and hence it should be based on the price of coal. After much discussion the operators waived their objections, and the iron basis was unanimously adopted. Then the question was discussed as to what should be the price for mining when the price for puddling was $5 per ton. The operators insisted that it should not be more than 2½ cents per bushel, while the miners insisted on 3 cents. On this question, though exhaustively discussed, the board failed to agree. The miners' representatives then moved that the rate for mining for November be 3½ cents, which was agreed to by the operators, and the board adjourned until November 21, 1879.

When the operators agreed to pay 3½ cents for mining, the miners' representatives on the board promised to do all that was possible to make this

rate as uniform as practicable throughout the district. For to ask or compel the employers, represented on the board, to pay higher wages than those who had, from illiberal or other motives, refused to encourage and support the arbitration experiment, would have been extremely pernicious and unjust; would be to tax the reasonable and the just for being so, and to encourage the unreasonable and unscrupulous to continue so. No section of our people appreciate so deeply the injustice of discrimination as the miners. When an employer had entered into any agreement valid in law, to pay a certain rate of wages, and afterwards the rate paid at the surrounding mines had, from any cause, fallen below the rate stipulated in the contract, their miners have invariably released them, and taken the general rate. But when the officers of the miners as well, for the protection of the just employer, as for the benefit of the miners themselves, proceeded to endeavor to compel, by lawful means, a small minority of the operators to pay their miners as much as the large majority did, objections were made, and several local strikes to equalize wages became unavoidable, which were all, after a brief struggle, successful, except that at the Penn Gas No. 4 mines, on Baltimore and Ohio railroad, which collapsed, because the miners working in the extensive mines, located at Irwin station, belonging to the same corporation, would not join their fellow-workmen of the aforesaid No. 4 mines, so that by the middle of November the price, ($3\frac{1}{2}$ cents per bushel,) fixed for this month by the arbitration board, was generally paid at the railroad mines.

On the 25th of November a convention of the Monongahela and Youghiogheny miners met at Elizabeth, passed a resolution in favor of submitting all disputes to the board of arbitration for amicable settlement, whenever a majority of the river operators had joined it, and decided to demand one half cent per bushel of an advance (from two and a half to three cents) for mining, to take effect on the 27th instant. This the river operators promptly conceded.

Taking up the arbitration thread, the board again met on the 21st of November, conciliated a few local disputes, and adjourned until the 26th. On this date, it appointed a committee on scales, reported back two scales, one based on the price of puddling, and the other on the price of coal on the wall at Pittsburgh, when, after a few days spent in discussion, which, though it did not produce an agreement, was, nevertheless, profitable and instructive, a vote was taken, resulting in a tie on each; consequently both failed of adoption. Rule thirteen* now required the selection of a referee, but it also required him to be the unanimous choice of the board. Judge Collier, of the Court of Common Pleas of Allegheny county, was unanimously selected, but owing to the pressure of judicial duties, His Honor could not accept. Several other well-known gentlemen were then proposed, but each failed to receive the required unanimous vote, and on December 4th the board adjourned without satisfying the hopes and expectations of its friends.

* The rules were published in full in the Report of 1878 and 1879.

The failure of this experiment should really not be discouraging. It was not a fair test. It failed simply because one of the rules (the thirteenth) was defective. Instead of requiring the referee to be the unanimous choice of the board, had it, on a disagreement, directed each side to select one gentleman of good repute, and the two to select a like third, whose decision would be binding on both parties, the test would have been fairer, whatever the final result would have been. Moreover, the feeling of the times was not favorable. It was very natural for a section of workmen that had suffered the extreme severities of a long panic, to become impatient at the slowness incident to all judicial procedure. These circumstances necessarily affected the members of the board. Men desired to be well thought of, and where they represent a constituency they incline to heed—are liable to reflect, more or less, the current feeling and opinions of their constituents.

Any scheme which would avoid lockouts and strikes, and their consequent great loss of profits to capital, and wages to labor, would be welcomed by all sensible men. Sliding scales, where the wages of the employé advances and declines with the price of the product, greatly diminish the number of strikes and lockouts; and both in this country and in England they are becoming popular. But they cannot totally abolish them, for very often the bitterest and longest conflicts are waged over the figures or gradations of the scales themselves. The principle of arbitration, skillfully applied and properly respected, is their only preventative. Under its rational and peaceful rule strikes and lockouts could not be honorably mentioned.

A short time before its dissolution, the operators laid before the board a proposition to reduce the price of mining for December, 1879, from three and a half to three cents per bushel. The representatives failed to agree either on the proposition or upon a referee to arbitrate it. After the adjournment the railroad operators, with more or less vigor, insisted on the reduction. The railroad miners met in convention, December 11th, and decided to resist it, and on the 16th the Railroad Coal Exchange withdrew their proposition.

1880. On January 7, 1880, the river miners met in convention, and decided to demand an advance of one half cent per bushel, (from three to three and one half cents,) to take effect on the 12th instant, and by the 20th of the month the operators had generally conceded it.

In the meantime, and since the last meeting of the Board of Arbitration, the railroad miners had not, in thought and hope, abandoned their scale. After their convention, in December, 1879, it had been quietly and earnestly discussed, a popular vote had been taken upon the question, "Are you ready to suspend work until your employer signs our scale?" and more than the requisite two thirds majority had voted in the affirmative. A convention of railroad miners was held January 8, and in the face of a protest from a small,

but an able minority, decided to declare a strike for the scale on the 12th. On that date, all the operators, except Gray & Bell; Wettingel & Gormley, of Saw-Mill Run; Armstrong & Son, Caswell & Dun, and Osceola Coal Company, on the Baltimore and Ohio railroad, refused to sign the scale, when the miners in a body, except those working for above-excepted firms, in all about four thousand five hundred men, with a brilliant exhibition of discipline, at six o'clock in the morning, quit the mines and quietly returned to their homes. When the miners voted on the scale, the card price of iron was three cents a pound, which gave the puddlers $5 50 per ton for boiling, which would not have changed the then price (three and one half cents) of mining. But soon after, on the 5th of January, and before the convention, the Western Iron Association advanced their card from three to three and five tenths cents per pound, which gave the puddlers $6 25 per ton, and this, on the miners' scale, would have made the price of mining four and one half cents, or an advance of three fourths of a cent per bushel; so that, on the 12th, when the miners quit work, they not only struck for a scale, but also for an advance. Before the 30th instant, the Western Iron Association had again advanced the card price for iron another five tenths of a cent per pound, (from three and one half to four cents,) which made puddling $7 25 per ton, and this figure on the miners' scale indicated five and one fourth cents per bushel for mining, which was another advance of one and one fourth cents per bushel. These rapid and radical advances in the price of iron since the railroad miners voted on their scale, and while they were on strike for it, so largely increased, through their influence on the miners' scale, the demand of the miners, that at the time they appeared to the press and public as extremely excessive, and to the miners as somewhat ludicrous. So, on the 30th of January, a railroad convention met and shaved the miners' scale down one half cent per bushel at the bottom, and so modified the gradation that, instead of showing five and one fourth cents per bushel, or $5 25 per one hundred bushels, when iron sells at four cents per pound—as it then was—it indicated $3 62½ per hundred bushels. Also, in deference to the wishes of the iron and steel workers, the card price of the Western Iron Association, instead of the price per ton for boiling, was made the basis.

The scale, as thus radically modified and lowered, was submitted to the Railroad Coal Exchange and rejected. The miners then withdrew their demand for a scale and demanded four cents per bushel. At eleven railroad mines, out of forty-four, this was promptly conceded, but the members of the Coal Exchange held firmly to their original three and one half cent proposition. About the 10th of January, the miners in and around Midway went to work at the employers' terms. This break weakened the other miners along that road; they wavered, again rallied, but, on the 18th, went back to the mines to work at the three and one half cents. The other sections of the district seeing this, considered it useless to further continue the struggle, and in a few days all the miners who desired, and who had

not been, by the employers, discharged, had resumed work at three and one half cents per bushel.

While the railroad miners' strike continued, to supply the city and manufacturers of Pittsburgh, which had more or less suffered for coal, the experiment of hauling or hoisting coal from the craft afloat on the Monongahela river was successfully tried. With a view to shut off this supply, several attempts had been made to induce the river mines to make a demand for four cents, or an advance of one half cent per bushel.

A convention of the river miners met at Pittsburgh on the 24th of January, and decided "it inexpedient to do so at present." From this time to the 1st of April, 1882, the coal industry on the rivers and railroads of the Pittsburgh district enjoyed a rare period of repose from general strikes and lockouts; but it has been much annoyed by local disputes, some petty and avoidable, and others important and unavoidable.

On the 24th of April, 1880, the railroad coal operators decided to reduce the price of mining from three and one half to three cents on the 1st day of May. The miners, not yet having had time to reform their ranks since the scale defeat, sullenly submitted.

Mining, as a rule, is comparatively dull along the rivers in the summer months. This is occasioned principally by the fact that the transportation of coal to the lower markets is prevented by the low stage of water. Nearly all the work done in that season of the year is the filling of empty barges or boats on hand, preparatory to the fall run. During the summer of 1880, some work was offered to the miners of several pits in the third and fourth pools at a reduction, and on June 4, a meeting of the men was held, and they decided to accept it. On the 24th of June, a large mass-meeting of the fourth pool miners, called by the general officers, met at Fayette City, declared the meeting of the 4th instant irregular, and passed a resolution to not accept the reduction. About July 4, all the operators, except one, withdrew it. At two mines, however, the miners continued to work at a reduction. The operators who were paying the price complained of discrimination, and their employés, as well to protect their employers, as to secure their own wages, formed a summer camp near the reduced pit, with a view to fully explain and argue the matter, and in this way to persuade the miners working under price to desist. After much patience and perseverance, the movement was successful, the men quit work, and, after a short strike, received the district price.

About September 1, an agitation for one half cent per bushel of an advance, which rapidly spread to the other sections of the district, started among the miners on the Chartiers Valley railroad. On the 7th of the month, a convention of the railroad miners met, but, upon reflection, decided that before demanding an increase, honest weight should be first secured at the prevailing price. It was suspected by the miners, and by many of the operators, that a few employers were exacting from their miners more pounds to the bushel than they in justice should do. The Coal Ex-

change was asked to coöperate, and answered that they were "perfectly willing to comply with existing laws relating to scales and check-weighmen, provided the person selected by the miners is not personally objectionable to the mine-owners."

On September 20, the railroad coal exchange, anticipating the demands of the miners, decided to advance the price of mining one half cent on the 1st of October. On the 23d, a miner's convention accepted, and resolved to make it uniform.

October and November, 1880, was distinctively an adjusting or an uniforming period. The miners' officials, acting under instructions from the convention, as well for the benefit of the operators paying a reasonable price, as for the good of the miners who were constrained by their exacting employés to work for a lower price, proceeded to remove, if possible, all discrimination in wages within their jurisdiction. Amicable means were first tried on the operators, and where these failed to receive proper respect and consideration the miners were advised to strike, and generally did so. The miners along the Baltimore and Ohio railroad, except those of the Alpsville mines, were being paid one half cent less per bushel than the standard price, placing those operators who were paying more at a disadvantage, and it was evident that if something was not soon done, that the repose and the wages of the district would be disturbed by a general strike. Mass meetings were held along the Baltimore and Ohio railroad, and by the 20th of October all the miners in the mines shipping west were out for the price, except the Waverly mines. These miners were, and had been for a number of years, working under an agreement in the nature of a sliding scale, the price of mining advanced or declined with the selling price of the Waverly coal, and in which the miner agreed to mine coal for said company for one year from date: "to leave ten per cent of all my wages standing in the hands of said Waverly Coal and Coke Company for one year, as a forfeit, which, in case I violate this agreement, by going on a strike, without giving the said company the said sixty days' notice, I forfeit and relinquish all claims in law thereto," and "the said Waverly Coal and Coke Company bind themselves in like manner and amount." The Waverly miners under the agreement, were receiving only two cents per bushel for the lump coal, with an addition of twenty-five cents per car for slack, in all, considered as an equivalent to two and a half cents per bushel, or one cent less than the district price, then paid by a large majority of the operators. This difference caused much complaint; the other firms in the neighborhood declared it unfair, and hinted that if not soon removed, a reduction would be proposed. So on the 17th of November, the Waverly miners met at the town school-house, and were addressed by two members of the miners' executive committee, and by their general secretary. In the course of the meeting a vote was taken, which showed that a majority of the Waverly miners were dissatified with their low price and local arrangements. But when a motion to declare a strike for the general price and

privileges was made, it was objected to, on the ground that in case they would quit work in a body under the agreement, they would forfeit ten per cent. of their earnings to the company, and that they being poor, could not afford to lose their respective amounts. It was then proposed that if the district association would reimburse each the amount forfeited, the Waverly miners would demand, and if necessary, strike for the price generally paid elsewhere, and to give the miners' secretary time to consult the proper authorities in this proposition, the meeting, after resolving to go to work as usual the next day, adjourned to meet the following evening to hear his answer.

On the next day, November 18, when on the evening train going up to attend and address the adjourned meeting, the miner's secretary was arrested for conspiracy at West Newton and placed under bail for appearance at the Westmoreland county court. At the trial in February, 1881, everything proven by the company was admitted, the defendants and their attorneys claiming that they had a perfect legal right to do everything they did, and that, therefore, the acts proven amounted to no crime or misdemeanor. The jury, however, being, in cases of this nature, in this State judges of the law as well as of the fact, believed that the acts admitted amounted to conspiracy, and found the defendants guilty thereof in manner and form as indicted.

In the following fall the defendants through their counsel applied to the Supreme Court for a "*special allocutor*" in order that the points of error assigned might be argued before and decided by that tribunal. The conspiracy laws of this State relating to trades' unions are very elastic and uncertain, and that ambiguous words and phrases in their wording should receive an authorative technical definition was generally wished. A proper regard for the liberty and security of the individual, whether employé or employer requires this, for no law is as oppressive as an uncertain one. But in cases of this nature, unlike in civil cases, where a writ of error is granted, of course the granting of a *special allocutor* is by law left to the discretion of the Supreme Court, and acting on this power the judges refused to allow the case to come before them. The defendants then complied with their sentence, which was to pay the cost of prosecution, a fine of $100 each, and undergo an imprisonment in the county jail for twenty-four hours. The costs and fines amounted to $355 29, and was promptly paid by the Miners' Association.

After the arrest in November, 1880, the miners along the Baltimore and Ohio railroad, including the Waverly miners, resumed work at the old rates, and the officers withdrew until the miners of the district collectively could take some action on the matter. On the 2d and 3d of December the miners met in a general convention, and, among other things, declared "that we have, as American citizens, the constitutional right to organize ourselves for our social and financial improvement; that we have a right to elect and renumerate a suitable person as general secretary to look after our interests;

that the person so elected has the right to call a meeting of miners on public or hired property, to peacefully address and pursuade them to act in accordance with the general policy and welfare of the body of the miners." The convention also passed "that we make immediate endeavors to persuade the Baltimore and Ohio miners to demand of their employers the same wages as is generally paid elsewhere, and that one delegate from each pit visit the Baltimore and Ohio miners and use all peaceable and reasonable means to persuade them to demand the district price."

The delegates, dubbed the "visiting statesmen," called and addressed mass meetings, and by the 8th of December all the Baltimore and Ohio miners, not receiving the district price, were on strike for it. But as a complete success was improbable without the coöperation of the Irwin miners, who were working for a less price and mining coal for the same market as most of the Baltimore and Ohio mines, the delegates now resolved to throw their moral suasion on the Irwin diggers, and on the 17th of December held a mass meeting at that point; but the "visiting statesmen" failed to induce those present to join their Baltimore and Ohio neighbors in a struggle for a general price. The latter learning this accepted a compromise, by which, for all coal shipped west, they were to receive the Pittsburgh price—at the time three and a half cents per bushel—and for all coal shipped east, the Irwin price—at the time three cents per bushel. This compromise or rule, which yet prevails, of making two prices for the same class of work, is not satisfactory to the miners of that section.

Of all the recent local troubles it would be too tedious to write or read. Among the most common causes for them are the refusal of the operator to allow the person elected and paid by the miners as check-weighman to go near the scales, as the law directs; a request to the miners to fill the slack without additional pay; the discharge of a fellow-worker for performing any official duties required by his trade's union, or for taking an active interest in the affairs of the miners. The local strike that awakened more than usual interest was the one occasioned by another attempt by the Waverly miners to abolish the labor contract above outlined. Instead of proposing to pay the forfeit, as in November, 1880, this time the sixty days' notice to strike, required by the article, was given, and on the

1881. 26th of November, 1881, the time having expired, the Waverly company, upon the refusal of their miners to re-sign the agreement, refused to allow them to work. The struggle became more earnest and interesting. The employers did all they could in a peaceable way to induce men to come to work for them, and the employés, likewise, did all they could to induce men not to go to work in the Waverly mines under the contract. Strange miners, sent up by agents of the company, on stepping off the train were met by a committee, whose duty was to civilly and fully explain to them the agreement and the situation. As a rule, the revelations caused them either to leave on the next train or to join the strikers. For almost two months these tactics were successfully used, and at one

time it seemed as though the firm would be constrained to abandon their condition of employment. But as now want was compelling the old miners to leave to obtain work elsewhere, the strangers, many of whom were immigrants, rapidly filled the mine, and about the 21st of January, 1882, the works were again in full operation under the "contract."

On the 13th of September, 1881, a general convention of both the river and railroad mines met at Pittsburgh, decided to demand an advance of one half cent per bushel—from three and a half to four cents—to take effect on the 15th of the same month, which was promptly conceded by the railroad coal operators, and by the river operators as they started their mines for the fall run.

1880. Semi-bituminous coal is mined and shipped northward into New York State, from the counties of McKean, Tioga, Lycoming and Bradford, the Blossburg or Tioga county coal region being located in the center of these coal fields. The coal in Bradford and Lycoming counties is similar to that found in Tioga county, and competes with the same in the market. The Bradford county mines are located at Barclay, Carbon Run, and Long Valley, and ship their product northward over the Barclay and Lehigh Valley railroads. The mines in Lycoming are at McIntyre, on the Northern Central railway, and the Tioga mines are located at Antrim, fourteen miles southwest of Wellsboro'—which finds an outlet north, *via* the Corning, Cowanesque and Antrim railroad—and at Arnot, Morris Run, and Fall Brook, which are accommodated with railroad facilities by the Fall Brook railroad, and the Tioga and Elmira State Line railroad. In December, 1879, the miners employed at the mines of the Fall Brook Coal Company, the Morris Run Coal Mining Company, and the Blossburg Coal Company, of Tioga county, demanded an advance of ten per cent., which was granted by the companies without any trouble or delay. Again, in the following month, (January, 1880,) they demanded a still further advance, which the companies refused, by saying that the price of coal was such, that under their contracts, they could not afford to make any further advances. The matter was under consideration for several weeks, and the miners gave notice that unless they were paid the advance demanded they would quit work on March 1. The companies informed them that they would use their best efforts to secure contracts on the first of May, that would enable them to pay the advance, that it was only two months to wait, and they were making reasonable wages at the time. They did not heed this advice, but on the first of March two thousand miners quit work. This action of the miners also threw a large number of mule-drivers, laborers, and railroad men, along the several lines leading from the mines, out of employment.

On the first of May the works were resumed under new contracts, and the advance demanded by the miners acceded to. It is estimated that the loss in wages amounted to about $300,000.

The activity in manufacturing industries throughout the State in the

fall of 1879, reached its highest point in the early part of 1880. Demands for increase of wages were quite general, especially among tradesmen whose localities had not been perceptibly benefited by the sudden revival. A large number of strikes prevailed, but as a rule, they were of very short duration, the demand, when not excessive, being generally complied with.

The miners of the Clearfield district were receiving 40 cents per ton for mining during the summer of 1879, and upon their demand for an advance of 10 cents per ton, it was granted. On the 23d of February, 1880, they went on strike for a further increase of ten cents, having given five days notice to that effect. There were about 20 collieries, employing from 2,700 to 2,800 persons, affected by the strike, all of whom were out, excepting two, the Moshannon, who was working about 20 men, and Morrisdale mine, who had also about 20 men at work. The strike was regarded at an end April 23.

In the latter part of February the puddlers of Atkins' mill, and of Palo Alto, Pottsville, made a demand for an advance of 75 cents per ton, and went on strike March 1. Work was resumed on the 9th on a basis, regulating their wages on the price of rails, which gave them nearly the advance asked for.

In the early part of March the puddlers in the mills about Harrisburg, including Fairview and Duncannon, made a demand for an advance of $6 per ton. They refused to accept $5 50, which was offered. After five or six weeks' idleness the demand for iron, in the meantime, having considerably decreased, they went to work at the original price, $5 per ton.

March 10, the molders in the employ of the Reading Hardware Company, numbering about 200, inaugurated a strike for an increase of 25 per cent. in their wages. The company requested the men to continue working for a few days, when a definite reply would be given them, which the men refused, and, in consequence, the three foundries of the company were closed, and the men paid off on the 13th. On the 21st of July they started one of their foundries, with about forty molders, who went to work on the company's terms.

On the 24th of May a strike was begun in the rolling-mills of Philadelphia, which was caused by the employers issuing a notice proposing the reduction of the price of puddling from $5 25 to $4 25 per ton, owing to the depressed state of the market in merchant bar. The puddlers stopped work, but intimated that they would accept $4 50 per ton. About a week later the workmen met, and adopted a scale with a minimum rate of $4 50 per ton, when iron sold at two and half cents per pound, which was submitted to the manufacturers by committees from each mill. No attention was paid to this, and the situation remained unchanged until about the middle of July, when the owners met and adopted a scale also, but began at $3 60 per ton, with iron at one and nine-tenth and two and one-tenth cents per pound, as the minimum. This in turn the employés rejected.

At a conference, held July 24th, between the manufacturers and the men a compromise scale was agreed upon. Making the minimum basis $4 00, with iron at two cents, by which the puddlers secured their original demand of $4 50 with iron at two and a half cents.

The several rates and propositions are as follows, the scales based on market prices of iron being quoted in the minimum:

Former rates,	$5 25	per ton.			
Proposed reduction,	4 25	"			
Rate demanded,	4 50	"			
Puddlers' first scale,	4 50	per ton,	with iron at	$2\frac{5}{10}$	cents.
Owner's compromise,	3 60	"	" "	$2\frac{1}{10}$	cents.
	4 00	"	" "	$2\frac{5}{10}$	cents.
Puddlers' compromise,	4 00	"	" "	2	cents.
Adopted price on scale,	4 40	"	" "	$2\frac{4}{10}$	cents.

The annual scale of prices, governing the wages of iron-workers in the Pittsburgh district, terminated June 1. Previous to that date, the puddlers had submitted a revised scale, increasing their wages fifty cents per ton over the previous one. The manufacturers would not sign the scale, and the men refused to work, resulting in the stoppage of all the mills. On the 8th, the manufacturers held a meeting, at which they resolved to withdraw all objections to any firm signing the scale. In a few days thereafter, nearly all the mills were at work, the firms having singly signed the scale giving the men the increase demanded.

1881. In the early part of April, the puddlers of the steel mill of the Reading Iron Works went on strike for an advance of $1 per ton. After a month's idleness, resumed work May 6, at the old rates, $3 50 per ton.

On or about the 12th of May, 1881, a committee of printers (appointed by the Printers' Assembly of the Knights of Labor) waited upon the proprietors of the several daily newspapers of Pittsburgh, and requested a conference in regard to wages. The prevailing rate for composition (or type-setting) was, at that time, thirty-five cents per one thousand "ems." The committee demanded an increase of five cents per one thousand, (forty cents per one thousand,) which demand was acceded to by the proprietors of nearly all the papers. The proprietors of the *Dispatch*, while they did not object to the demand for an increase of wages, protested against certain other propositions of the committee of printers in relation to the manner of conducting affairs in the composing room. The printers were told, however, that their demands were all acceded to—under protest. Soon after this arrangement, one of the *Dispatch* proprietors visited Cincinnati and engaged a number of compositors to take the places of those then employed. This fact was learned by the *Dispatch* printers, on Wednesday, May 25th, and their committee again waited on the proprietors and demanded that assurance be given that they would be permanently retained.

This demand was refused, and the printers left the office. As the force from Cincinnati had not arrived, the *Dispatch* proprietors were compelled to borrow "matter" from other newspaper offices, in order to get out their paper.

On Thursday, May 26, the Cincinnati printers arrived and were installed in the places of the strikers. The latter, thus suddenly thrown out of employment, generally submitted quietly, and a majority of them sought and obtained employment elsewhere. A few of the strikers who remained idle were wont to loiter on the streets in the vicinity of the *Dispatch* office, and insult the printers who had taken their places, which conduct on their part culminated in the killing of one of their number by a *Dispatch* printer, in retaliation for a blow from a handy-billy, administered by the striker, who was killed. This occurred on the 15th of June. The Knights of Labor, at a special meeting, adopted resolutions deploring the occurrence, and discountenancing violence on the part of their members. From the beginning of the strike until the end thereof, the Knights of Labor waged a bitter fight against the *Dispatch*, and claimed that they had succeeded in largely decreasing the circulation and general business of that paper.

On the 16th of June, the day after the shooting of the striking printer, the *Dispatch* proprietors discharged the Cincinnati force, which had supplanted their former employés, and reinstated the latter. Since then there has been no disturbance among the Pittsburgh printers.

On the 30th of May, 1882, the Printers' Assembly of the Knights of Labor presented a scale of prices for the current year, which was acceded to by the proprietors of all the papers upon which the members of the organization are employed, and there are now no indications of further trouble.

On May 18th, the bricklayers at Easton struck for an advance from $1 75 to $2 25 per day, they were offered a compromise at $2 15 per day, which was accepted, and work resumed on the 24th. The carpenters also struck for an advance of 25 cents per day; after being out one day their demand was granted.

May 26, a meeting was held of the master bricklayers of Philadelphia, and a resolution adopted, to the following effect: "That we will not knowingly employ any bricklayer or hod-carrier who had left his previous employer for higher wages, and if we shall do so unknowingly, when notified of the fact, will immediately discharge parties so employed." The bricklayer's Union—which numbered 1,692 members, held a meeting and resolved to go on strike until the objectionable resolution was rescinded. A committee was appointed to confer with the bosses, who finally agreed to withdraw the resolution.

In the latter part of May, the horseshoers employed by the several passenger railway companies and custom-shops in Philadelphia engaged in a strike for an advance of $2 per week for each grade of workmen, increasing the wages of makers and fitters to $18 per week, and those who drove on

the shoes to $16. The advance was conceded by all the shops by the 6th of June.

On the 6th of June, the miners and coke-drawers of the Fayette and Westmoreland counties' coal and coke district, on the line of the Baltimore and Ohio railroad, went on strike, the estimated number being between three and four thousand men. The miners demanded an advance of one cent per bushel for mining coal, and the coke-drawers an advance of ten cents per oven. The rates heretofore paid were ninety cents per one hundred bushels where the coal was weighed; but in a large number of mines they were paid thirty cents per car, three cars supposed to contain about one hundred bushels. The drawers were receiving from sixty to seventy cents per oven, varying in proportion to size of oven, an average of three ovens constituting a day's work. The strike continued for three weeks, although full resumption did not take place until the first week in July, the miners and coke-drawers returning to work at the old rates. During the progress of this strike, a number of families were ejected from their houses in pursuance of a written contract, signed by the men and proprietors, and which required the employé to give up possession of the tenement in which he lived at the expiration of ten days after the tenant ceased to be in the employ of the individual or firm owning the house. A few of those engaged in the strike were arrested, tried, and convicted for carrying concealed weapons, &c.

On June 9, the agreement as to the rates paid the carpet-weavers of Philadelphia would terminate, the same having been in force since the previous month of December, and, according to the custom of the preceding eighteen months, a new agreement had to be made. An arbitration committee from among the manufacturers was appointed in the latter part of May to meet a similar committee from the weavers, to negotiate for the ensuing six months. The committee of weavers made a demand for an increase of one cent for weaving, equivalent to ten per cent., which was declined, and the manufacturers unanimously decided to take a stand against the increase. Both committees met on June 1, and, after a discussion, the weavers agreed to accept the old rates for another six months.

On June 21, the journeymen tin-roofers of Philadelphia, who were receiving $1 75 and $2 a day, made a demand for an increase to $2 50. After a strike of one day, their demand was acceded to.

On the 22d of November, the employés of Schoonmakers, and also those of Albrecht & Co., piano manufacturers, Philadelphia, made a demand for an increase in the wages of all classes of ten per cent., and, upon being refused, turned out to a man. In the course of a week, a compromise was effected by the firms conceding the ten per cent. asked for on all new contracts, but that all unfinished contracts be paid at old rates, which was agreed to.

The finishing boys in the glass-works at Pittsburgh went on strike September 1, for an advance from thirty-five to forty per turn of five hours,

and the mold boys from forty-five to fifty cents per turn. After being out one month, they returned to work at the old rates.

SUMMARY.

The foregoing pages contains a condensed outline of one hundred and fifty-two strikes in additon to some historical facts in connection with the industries enumerated. The enumeration is far from being complete as strikes of untold number have taken place, of which no correct account can now be obtained. They prevailed to the greatest extent during the periods of revival and depression in business, and were occasioned through the belief that the condition of trade warranted an advance in wages or that it did not justify a reduction. In either times the greatest number of them were of short duration, and it can safely be said that they terminated proportionately as did those we have given. A computation, or even fair estimate, of the amount of loss accruing to the wage worker as well as to the employer would be of value, but in making the attempt we found it would be impossible to do so with any degree of accuracy. A brief consideration of the great industries involved, the number engaged, and the actual time of idleness is sufficient to convince everyone that the loss in dollars and cents was enormous. The classification by industries is as follows:

Occupation of Strikers.

Blacksmiths,	1	Puddlers and boilers,	12
Bricklayers,	3	Laborers,	9
Brick-makers,	1	Lumbermen,	1
Cabinet-makers,	2	Machinists,	2
Carpenters,	5	Moulders,	6
Cutlers, (Chinese,)	1	Painters,	1
Coal miners,	42	Piano-makers,	1
Engineers,	1	Printers,	3
Factory operatives,	18	Railroad employés,	10
Glass-workers,	4	Saddlery and harness,	2
Gold-beaters,	1	Ship carpenters,	2
Hat-finishers,	1	Shoe-makers,	8
Hod-carriers,	1	Stonemasons,	1
Horse-shoers,	1	Tailors,	2
Iron and steel-workers,	8	Tin-roofers,	2

Location of Strikes.

Allegheny City,	3	Beaver county,	1
Allentown,	1	Bradford "	1
Altoona,	1	Clearfield "	2
Easton,	2	Fayette "	2
Harrisburg,	3	Lackawanna "	15
Philadelphia,	58	Lancaster "	2
Phœnixville,	1	Luzerne "	3
Pittsburgh,	17	Lycoming "	2
Reading,	3	McKean "	1
South Easton,	1	Northumberland "	1
Williamsport,	1	Schuylkill "	9
Allegheny county,	8	Susquehanna "	1

Tioga	county, ... 2	Pennsylvania railroad, ... 1	
Washington	" 2	Reading railroad, ... 3	
Westmoreland	" 5		

Causes of Strikes.

To secure better wages, ...	77	Resistance to employer's rules, ...	10
Against a reduction, ...	42	Against the boss, ...	1
To secure shorter days, ...	16	For regular pay, ...	1
Against the organization of labor, . . .	3	Against store orders, ...	1
To enforce union rules, ...	2		

Result of Strikes.

Successful, ...	45	Compromised, ...	13
Unsuccessful, ...	66	Result unknown, ...	17
Partly successful, ...	11		

From the days of Adam Smith to the present, capital and labor, with the proper distribution of wealth, is a subject that has engrossed the attention of the leading minds of the world. The great writers of political economy, both living and dead, have given to mankind, as a heritage, many volumes, elucidating their ideas upon the great social problems with a diversity almost equal to their number. To them are daily added the thoughtful and well-studied ideas of the eminent newspaper editors of our times, whose conclusions are deduced from the gathered facts of passing events. But while these volumes and editorials are food for constant thought, and thus, in many ways, result in great good, the conflict between those who work and those who pay them for their work continues. While concessions of a wholesome nature are now more frequently made upon both sides, thus drawing the parties closer together, still there continues a quiet, but ceaseless, agitation, which, at times, bursts forth into a conflict, by men assuming a deliberate, determined line of action, fully demonstrating that there is not that harmonious feeling existing that is so essential to common success and so much desired by all thoughtful men. It is an inherent principle in mankind to attain a better condition of life, by seeking to throw off the oppression of the present, and to properly elevate themselves to a plane surrounded by the attributes of a broader and nobler sphere. This spirit has predominated from the earliest period of government, and has exemplified itself through the varied ages of the past. He who rules a nation or people with an iron hand, dispensing right, justice, and equity only as it appears to his depraved and cruel nature, in due time is taught, much to his own discomfort, that there is an end to patient submission, and that justice will assert herself in behalf of an outraged people, though he who rules shall rule no longer. He, or they, who have by the varied methods of life, accumulated wealth and become the employers of labor, and, as such, issue edicts, establish a code of rules, and regulate wages in an arbitrary, selfish, and unjust manner, must, in a like way, expect those whose manhood they would pluck from within them, at times to revolt, and that, too, in the only way left for them, by laying aside their tools and enter upon a "strike." True, many strikes occur whose justice cannot be

maintained, the act being prompted by motives that are wholly unwarranted, and from premises unsound and fictitious. As a rule, however, strikes are the attempts to redress imaginary or real wrongs practiced upon those who engage in them, either in the amount of wages, the time or manner of its payment, or the restrictions placed upon them while performing the labor, and, in general, the conflict is measured by the judged enormity of the evil sought to be remedied.

The fiercest struggles, and of longest duration, have been those where labor has become solidified, through association, against that of employers combined in the protection of a common interest. These are the results of an accumulation of capital, engaged extensively in the production of a given commodity, upon the one hand, and the aggregation of labor in large bodies, in given localities, upon the other. The massing of capital into the hands of an individual, or a limited number of individuals, to an excess above average possessions, and it used in the production of manufactured commodities, implies the collection of men in large bodies, whose condition is likely to be that of comparative poverty, as well as absolute dependence upon them for employment. Formerly, when trades were carried on in small and separate establishments, the steady and industrious was not only the owner and dispenser of his own productions, but might reasonably hope that, in due course of time, he could, also, become the employer of others. Theoretically, this is true to-day, and in this great country the workman of this year becomes the employer of the next, to a greater extent than in any country on the globe. Circumstances, however, frequently prevent the consummation of such aspirations, while the aggregation of capital, or its concomitant, the united action of capitalists, inexorably deny him what law and equity might freely permit.

The number of small shops, wherein were the tools and capital of shoemakers, carpenters, and other tradesmen, and through which they made a comfortable and comparatively independent living, have largely diminished, having been supplanted by the introduction of machinery. The same holds good with reference to iron and steel workers, the old method of making nails and other characteristics of iron has been set aside to make room for new methods in their manufacture and to promote increased production. The same rule applies to other trades, including those engaged in the production of textile fabrics, for like others, separate industry has been superseded by collective industry in large establishments. This, however, is no disparagement upon the genius that invented machinery, nor the new methods of production, for their introduction has not in any wise deprived men of employment, but has simply "changed the condition under which they work."

The system, however, has largely been the means of drawing a distinctive line between the few who employ, and the many who are employed.

This gregarious collection of labor has afforded opportunities for mutual intercourse, that begat intelligence, from which sprang the associations that

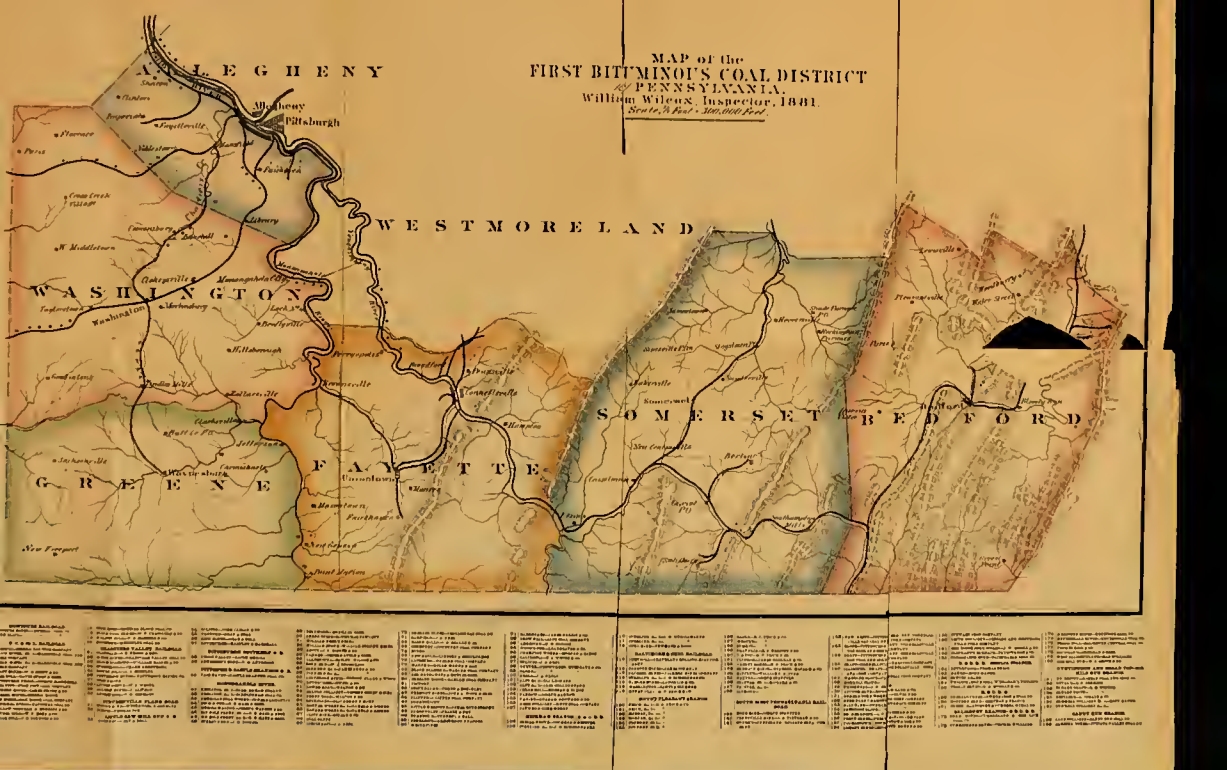
exist in such great numbers among the ranks of labor. Nor, in our day, do these associations exist in single communities or localities, but extend over many; for the reason that the same kind of commodities are manufactured in different places, employing the same class of men, who strive to keep their wages at a uniform living rate, as the employer strives to sell at a correspondingly profitable one.

In the absence of association "strikes" generally are of more frequent occurrence and for reasons that are trivial, imaginary, and unnecessary, usually ending disastrously to the workmen, and are, oftentimes, followed by exactions more grievous than ever. However, such impositions, when they occur, have a tendency to cause them to counsel with each other, which in its turn solidifies them into closer union, forming a combination through which they will, again and again, make exertions, until finally, the equity for which they contend, is, in some satisfactory way conceded to them. By this it is not to be inferred that all the actions of associations are blameless; on the contrary, they oftentimes become aggressive and entirely unreasonable in their demands, and thus bring great discredit upon themselves and their cause; but that is the abuse and not the use of trades' associations.

Through associated labor can the only practical remedy for strikes come; for, when wisely conducted, they are schools of intelligence for those who compose them. Their membership, however, should be men of fairness and ability, men who have not only the stamina to resent when rights are denied them, but able to comprehend, define, and sustain intelligently the position that is assumed. The worst enemies of labor are those who would enter these associations, and through this means seek to personally elevate themselves to the disparagement of others, and who thus care not for their fellows, if only they can be, in any manner pecuniarily or otherwise, benefited. To the honest workman it is a question of how to better his condition, increase his comforts, and properly educate and protect those dependent upon him; questions that appeal to his heart and understanding, and upon which he should take counsel only from those whom he knows to be honest, intelligent, and industrious.

It is generally conceded that "strikes" are an evil greatly to be deplored, as they not only disrupt business relations, retard progression, and in their train produce want and starvation; yet, it is questionable if none had ever occurred, whether labor would to-day be recognized to as great an extent as a partner in the social economic relations of life. Strikes in the past, as we have said, have been waged against what seemed to the mind of the worker, injustice and oppression, and we fear they will come and go, as in their judgment the measure of equity is granted or denied them. The all-important question has been, and is to-day, how to avert or prevent them. The removal of every barrier that in its selfishness, prevents social intercourse, fair argument, and united deliberation, would certainly be an important step in that direction. So long as employer exhibits an unwilling-

ness to convince men by reasonable means, that he is paying all he can, and crediting the workman honestly with his entire earnings, just so long will the employé look upon him with distrust and suspicion. Nor should the employé exact more than the state of trade will warrant, as by that means he is doing an act of injustice towards his employer, and brings ruin upon himself. These and like questions can be amicably arranged and thus strikes avoided, if men, through association, or otherwise, will wisely conclude not to ask too much, and employers conscientiously agree not to offer too little. Rather than have idleness prevail, all difficulties should be referred to a conference committee, composed of representatives from each side, who should assemble for the purpose of discussing the differences that exist, and to mutually adjust them. In these conferences all charges should be made and proven, and all demands sustained or withdrawn. The inability to pay prices should be fully demonstrated, and all charges of fraud should vanish by the indubitable evidence that no fraud exists. Both sides cannot be wholly right, and he who fails to show that his position is a tenable one, must sooner or later succumb to the inevitable fate of all who are in the wrong. Reason must take the place of prejudice; right that of wrong, and each must assert its supremacy in deliberate counsel in a manner convincing to all. When this rapidly growing plan is augmented to such a degree as to command general recognition and approval, the number of "strikes" will rapidly diminish.


MAP of the
FIRST BITUMINOUS COAL DISTRICT
of
PENNSYLVANIA.
William Wilcox, Inspector, 1881.
Scale, 3 Feet = 100,000 Feet.
ALLEGHENY
Allegheny
Pittsburgh
WESTMORELAND
WASHINGTON
Washington
FAYETTE
GREENE
SOMERSET
BEDFORD

BITUMINOUS COAL DISTRICTS.

The following are the counties, or parts thereof, composing the respective mining districts of the bituminous coal fields of the State, as arranged in accordance with law by the late board of examiners, with the name and postoffice address of the several mine inspectors.

FIRST DISTRICT.

That part of Allegheny county lying south of the Ohio and Monongahela rivers, together with the counties of Bedford, Fayette, Greene, Somerset, and Washington.

JAMES LOUTTIT, Inspector,
(Vice William Wilcox, resigned,)
Monongahela City, Washington county.

SECOND DISTRICT.

That portion of Allegheny county lying north of the Ohio, Monongahela, and Youghiogheny rivers, and the counties of Armstrong, Beaver, Butler, Indiana, and Westmoreland.

JOHN J. DAVIS, Inspector,
Brady's Bend, Armstrong county.

THIRD DISTRICT.

The counties of Cameron, Clarion, Clearfield, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren.

THOMAS K. ADAMS,
Wheeler P. O., Mercer county.

FOURTH DISTRICT.

The counties of Blair, Bradford, Cambria, Centre, Clinton, Huntingdon, Lycoming, Potter, Sullivan, and Tioga.

ROGER HAMPSON, Inspector,
Towanda, Bradford county.

FIRST DISTRICT.

To the Honorable A. K. DUNKEL, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I have the honor herewith to submit my fifth annual report of the inspection of bituminous coal mines, in the first bituminous coal district of Pennsylvania, for the year ending December 31, 1881. Since writing my last annual report, and in accordance with an amendment to the mining law, a new district has been made. In the re-distribution of territory composing the four districts, the examing board assigned Westmoreland and a part of Allegheny counties to the second district, thereby reducing the number of mines in this district from 260 to 189, therefore there is a corresponding reduction in the aggregate production of coal in the district. The estimates, which have been very carefully compiled, are 8,272,605 tons. The number of fatal casualties are twenty-three and the non-fatal forty-three, or one fatal casualty for each 359,678 tons of coal mined, and 192,-386 tons were mined per each non-fatal casualty. The number of widows are eleven and orphans thirty-three. The condition of the mines is improving yearly, and there is less cause for complaint now than ever before.

Very respectfully yours,

WILLIAM WILCOX,

Inspector.

MANSFIELD, *February 10.*

On January 1, I sent the following blank to all the operators in the district:

OFFICE OF THE MINE INSPECTOR OF THE FIRST
BITUMINOUS COAL DISTRICT OF PENNSYLVANIA,
MANSFIELD VALLEY, ALLEGHENY CO., PA., *January 1, 1882.*

To . . . . . ,

I inclose you this blank report, which I desire you to fill up and return to me not later than January 12. I desire to make a full and correct report of the number of persons employed and the amount of coal and coke produced in this district. This I can do if you furnish the information required promptly. The information furnished by you will be *kept strictly private and confidential*, and will only be published in the aggregate production of the district, *except at your request.* This information is of great importance, both to operators and the public in general. I shall be much obliged by your prompt reply to the following questions:

Number of mines operated by you in 1881.

Average number of persons employed in the mines.

Average number of persons employed outside.

Average number of mules and horses employed.

Number of tons of merchantable coal of 2,000 pounds each mined in 1881.

Number of days worked in 1881.

Average price paid for mining per ton.

Number of coke ovens operated by you in 1881.

Number of new ovens built in 1881.

Improvements made by you in 1881.

Experience teaches me there are no class of men connected with mines so much needed as good mining bosses, both for the protection of property and the health and safety of the workmen therein engaged. Are you in favor of the passage of a law by our Legislature requiring all those not having had charge of mines three years successively to pass an examination, before competent persons appointed for that purpose, before taking charge of a mine in the capacity of mining boss? Please answer yes or no.

Respectfully yours,

William Wilcox,

Inspector.

There are 189 mines in the district, and 181 have been operated this year. To the above circular I received answers from 113 mines. The aggregate, which furnished data for the following estimates, is as follows:

Number of mines sending reports,	113
Number of mines not reported,	68
Total number of mines operated,	181
Number of mines not operated,	8
Total number of mines in the district,	189
Amount in tons reported,	5,164,734
Number of persons employed inside reported,	7,308
Number employed outside reported,	2,037
Total number employed about the mines,	9,345

Taking the above as a basis of calculation, we get the following tables:

Total number of mines in the district,	189
Number of mines operated in 1881,	181
Number not operated,	8
Estimated total production of coal from the 181 mines operated in 1881, tons,	8,272,605
Number of persons employed inside,	11,720
Number of persons employed outside,	3,258
Total number of persons employed, estimated,	14,978
Average output per mine per year in tons,	45,705
Average number of persons employed as miners,	64
Average number as day hands, &c., outside,	18

Average number of employés at each mine,	82
Average number of days worked at each mine,	172
Average output in tons per miner per year,	706.72
Average output per person employed per year, tons,	552.31
Average price per ton paid for mining alone,	66.9 cents.
Average output per miner per day worked, tons,	4.6
Average amount earned per miner per year,	$472 79
Average amount earned per miner per day,	$2 74
Total number of mules employed, estimated,	1,086
Average number of mules at each mine,	6

The reader will bear in mind this district has been reduced from two hundred and sixty mines in 1880 to one hundred and eighty-nine mines in 1881, and this estimate is based on the one hundred and eighty-one mines operated.

When I visited the mines this year, I was very careful to get a correct list of the number of persons employed inside and outside at every mine, and, in looking over this list, I find the estimated number of men employed at each mine comes within a fraction of the number I found employed therein.

But the amount of coal mined is not a correct estimate, being far below what it would be if a true report could be had. For this reason, many of the operators look upon nut coal and slack as unmerchantable coal, and, therefore, never report it in the output. I am sure this is a fact, because when I received the reports, the output looked so small I wrote to some of the operators, asking if they had included the nut coal in the output, and in nearly every case the answer was, "No; only the lump coal." I can readily see how this will occur. Many of the mines are operated on a lease, and only lump coal paid for; neither miner nor lessor being paid directly for nut coal or slack. The accounts of the product is never weighed, but always measured or estimated in the car or boat. Many of the operators cannot tell how much nut coal and slack they handle in a year, for the above reasons. Under the present state of the law it is impossible to get a correct account of the product of the mines. Some of the operators neglect or refuse to make these reports, and consider it nobody's business what kind of coal they mine, and have an aversion to reporting the annual production of coal, regarding it as private business. I am fully satisfied, could a correct account be had, that the output in this district for 1881 would aggregate not less than nine million tons.

In answer to the last question in the circular, "Are you in favor of the passage of a law by our Legislature requiring all those not having had charge of mines three years, successively, to pass an examination before competent persons, appointed for that purpose, before taking charge of a mine in the capacity of mining boss?" I received reports from eighty-nine operators, and thirty-seven of them said "Yes," and twenty-three said "No." A few said, "It is not necessary;" the balance made no answer.

I suppose the question is not properly understood, or I am sure both operators and superintendents would favor it. There is a general complaint, by both operators and superintendents, against men who are incompetent occupying this position. All desire to secure the services of good men; but where are they to come from? Have we any schools graduating a class of competent men every year? Providing the required amendment was made to the mining law, examinations could be held once or twice a year. They could be commenced low at first, to give all a chance, and increased every year, until, in a few years, we would have as good a set of men in charge of the mines as those of the British Isles of to-day. A law of this kind would work a marvelous change in the underground workings of our mines. That any mine operator can be opposed to having an intelligent person at the head of affairs, is more than the writer is willing to believe.

TABLE

Showing coal production, etc., in the First Bituminous Coal District.

ESTIMATED AMOUNT OF COAL PRODUCED IN TONS.	1878.	1879.	1880.	1881.
Estimated amount of coal produced in tons,	9,372,881	10,044,926	12,158,248	8,272,605
Estimated number of persons employed in the mines,	15,198	14,788	18,172	11,720
Estimated number of persons employed outside,	2,821	3,332	5,192	3,258
Estimated total number employed about the mines,	18,019	18,120	23,364	14,978
Total number of casualties about the mines,	93	129	146	66
Number of lives lost in and about the mines,	32	36	28	23
Number of non-fatal casualties,	61	63	118	43
Number of deaths from falls,	25	24	20	20
Number of deaths from wagons,	2	6	5	2
Number of deaths from explosions,		4		1
Number burned by explosive gas,	6	12	12	2
Number of widows,	18	16	14	11
Number of orphans,		65	45	33
Amount of coal produced, per life lost,	292,902	279,026	434,223	359,678
Number of persons employed, per life lost,	563	503	834	651
Number of persons employed, per each casualty,				227
Amount of coal produced, per each non-fatal casualty,	153,653	108,000	103,036	192,386
Number of casualties under 21 years of age,			31	12
Number of fatal casualties under 21 years of age,			8	4

Number of Mines in each county in the district, etc.

	Deaths from falls.	Deaths from wagons.	Explosion.	Burned.	Legs broken.	Arms broken.
Fayette,	4	2			1	1
Allegheny,	7	2		1	6	2
Washington,	2		1	1	3	
Somerset,	2				1	
Bedford,	1				1	
Greene,						

Number of Mines in the District in each County employing more than Ten Men each, when at Work.

Fayette,	72
Allegheny,	52
Washington,	39
Somerset,	17
Bedford,	9
Greene,	0

Fayette county has fifty-four mines producing coal for coking purposes; and in this part of the coke region there are six thousand and twenty-four coke ovens, with more building. Frick & Co. are the largest operators, who, in this county alone, have eleven mines and one thousand one hundred and seventy coke ovens. They have also large interests in Westmoreland county. The Cambria Iron Company comes next, with five hundred ovens. The Sterling mines, operated by J. M. Schoonmaker, has four hundred and sixty-three coke ovens. He has also large interests in other mines in Fayette and Westmoreland counties. Besides the above, there are in Fayette county eighty-five coke ovens, located along the Monongahela river, making the total number of ovens in this county six thousand one hundred and nine. In that part of Allegheny county in this district there are one hundred and fifty-eight coke ovens, located along the Monongahela river and the railroads, making the total number of coke ovens in the district six thousand two hundred and sixty-seven; and to charge these ovens three times each per week requires about four million tons of coal per year.

After being re-appointed Inspector for the First Bituminous Coal District, I filed my bond, and began visiting the mines, and, on July 1, I sent the two following circulars to all the operators, their superintendents and and mining bosses in the district:

OFFICE OF THE BITUMINOUS COAL MINE INSPECTOR,
FIRST DISTRICT OF PENNSYLVANIA,
MANSFIELD VALLEY, ALLEGHENY COUNTY, PA

GENTLEMEN: Having been re-appointed mine inspector for the First dis-

trict, which embraces the counties of Washington, Greene, Fayette, Somerset, Bedford, and that portion of Allegheny lying south of the Ohio, Monongahela, and Youghiogheny rivers, I now ask your attention to the provisions of the mining law, and trust you will render me all the assistance in your power in seeing it carried out in all its details. The first section of the law requires you to have an "accurate map or plan of the workings on a scale not exceeding one hundred feet to the inch, showing the bearings and distances, which shall be kept, for use of the inspector, in the office at the mine." For the safe and successful working of a colliery this is a very important matter, for without its aid and assistance both superintendent and inspector are working in the dark.

The second section requires that there "shall be two openings to every mine." "If the mine be worked by shaft or slope the openings shall be separated by natural strata of not less than one hundred and fifty feet in breadth and not less than twenty-four feet if the mine be worked by drift."

By the fourth section you are required to "provide ample means of ventilation, affording one hundred cubic feet of air per minute for each and every person employed in the mine, which shall be circulated around the main-heading and cross-headings to an extent that will dilute, carry off, and render harmless all noxious gases generated therein; and all mines generating fire-damp shall be kept free of standing gas, and every working place shall be carefully examined every morning with a safety lamp by a competent person, before any workmen are allowed to enter."

The fifth section requires you shall "employ a competent and practical inside overseer, to be called mining boss," and then goes on to define his duties; and here I would say the mining boss is the most important person about a colliery. Upon him devolve the duties of carrying out also the instructions of the superintendent and mining engineer, and upon him devolves the duty of directing the operations of workmen underground. Upon his care, attention, and intelligence, depends in a great measure, the health and safety of the workmen. It is very important, then, that the mining boss shall be a man of intelligence, ability and experience in all matters pertaining to mining in his district; therefore, under no circumstances should any others be employed for that purpose. This is a subject that will receive the special attention of the mine inspector, and incompetent persons in this position will not be tolerated. The superintendent will be required to see the mining boss measure the air-current once a week, and make his report to the inspector every month, and that he also attend all other duties required of him by the law. Blanks will be furnished, upon application, for making monthly reports to this office, and the law in all its provisions will be strictly enforced.

I remain, respectfully yours,

William Wilcox.

OFFICE OF INSPECTOR OF BITUMINOUS COAL MINES,
FIRST DISTRICT OF PENNSYLVANIA,
MANSFIELD VALLEY, ALLEGHENY CO., *July 1, 1881.*

To the Mine Bosses of the First Bituminous Coal District:

GENTLEMEN: I desire to call your attention to the provisions of the mining law and your duties under the same. Experience has taught me in many cases when the means are at hand for having a good supply of pure air in the mines, that ventilation is not carried to the face of the workings as it should be, but the air is allowed to escape to the outlet without passing around the workings. The reason for this is found in incompetence, neglect, or carelessless of the mine boss in charge. In such a case the mine is little better for having a good ventilator, and for all practical purposes the money spent might just as well be thrown away. The first care of a mine boss is the health and safety of those under him, and to see that all parts of the mine are well-drained and properly ventilated. This can only be done by constant attention to the ventilating arrangements, doors and stoppings, and see that no leaks occur that will prevent the air from passing around the workings. The fifth section of the law makes it the duty of the mining boss to "measure the air current at least once a week at the inlet and outlet and at or near the face of the headings, and report the same to the inspector of his district," and see that sufficient timber is furnished, of suitable lengths and sizes, for the places where they are to be used and placed in the working places of the miners. "It is also his duty to visit the men in their working places and give such instructions in the workings of their places that will, as far as possible, prevent accidents from falls of roof and coal. There have quite a number of accidents taken place this year from persons riding on loaded wagons underground, and I hope you will give such orders, and see them carried out, as may tend to lessen the number of accidents from this and all other causes. Very much depends on the enforcement of such orders for the safety of the workmen. I hope, therefore, nothing will be left undone on your part that may tend to prevent accidents of all kinds. Every mining boss will be held to a strict compliance with the requirements of the law.

Respectfully yours,

WILLIAM WILCOX.

VENTILATION FURNACES AND FANS.

Ventilating furnaces have been built at the following mines this year:

Thomas Fox has built a small furnace at the Minnick mine.

J. W. Smith is building one at Tub Mill Run colliery.

The Salisbury Central Coal Company are building one at Frogg Hill.

I. D. Sanders & Co. have built one at Brier Hill.

One has been built at Berlin mines.

A furnace has been buitt at Black Hills mine.

The Phœnix Gas Coal Company have built one.

The mining boss at Fair Haven mine reports one.
Rafferty & McClure have built one at the Diamond mine.
H. C. Frick & Co. have built one at the Valley mines.
James Cochran & Co. have built one at Clinton mines.
Sandy Run Coal Co. have built one at the Lane colliery.
A. Covett & Co. have built one at Defiance mine.
James Lynn & Co. have erected one at Pine Run Mines.
Foster, Clarke & Wood are building one at the Jefferson Mines.
Hartley & Marshall are building one at Enterprise Mines.
Armstrong & Jacobs have built one at Excelsior Mine.
The Knob Coal Co. have built one at their slope.
Crouthers, Musgrove & Co. have built one at the Globe Mines.

FANS.

Fans have been erected this year at the following mines:

The Chicago Gas Coal Co. have erected a champion fan at the Buffalo Mines.

The Chicago and Connellsville Coke Co. have erected a champion ventilator at Leith colliery, Uniontown.

The Pittsburgh and Connellsville Coke Co. have erected one at their Mine, Cambria Iron Co. one at Morrell, the Connellsville Coke and Iron Co. have erected one at their mines. All the above fans are giving general satisfaction in ventilating the mines.

VENTILATION, ETC.

The building of so many ventilating furnaces and fans in the last four years in this district has had a salutary effect on the mines both in preventing explosion of fire-damp and expelling noxious and poisonous gases generated therein, thereby rendering the miners' working-place more healthy to work in. And the past year has been remarkably free from explosions of gas. Still I am compelled to record the death of one man and the burning of two others from explosions of fire-damp. In the case of the men that were burned it was entirely their own fault and nobody can be blamed but themselves. Plunkett's death, however, was not the result of his own carelessness but was caused by the carelessness of some one else by leaving open a door which cut off the ventilation for a short time, and which allowed the gas to accumulate in the heading and become dangerous. Bad as was the death of Plunkett, it might have been worse; not only Plunkett's life was in danger but all those working near him might have shared his fate. John Monahan was burned by going into another man's place to get a wedge after being told not to go there until the fire-boss had examined it.

The mines on the Montour railroad are two in number, Beech Cliff and Montour mines. Both are owned and operated by the Imperial Coal Company. The coal seam lies about two hundred feet above the railroad, and is reached by incline planes. All the outside improvements are of the

most substantial character. At Montour, a good-sized town has been built with large store and post-office. The Beech Cliff mine has double main-headings twelve hundred yards long and ten single cross-headings. The latter are all connected by air ways. Ventilation is furnished by furnace—shaft and stack located at the west side of the working. The underground workings are in charge of George P. Bird. Ventilation is ample and all the headings were found in good order. The main-headings are dipping to the south and the bottom is irregular, which makes the mine hard to drain. The roads were wet, owing to water having to be hauled, but since my visit they have sunk a shaft and put in a steam pump at the lower end of the workings, and the mine is well drained and ventilated. There are five openings here, and about one hundred and forty men and boys are employed inside and out. Air measurement at the face of main-heading showed eleven thousand seven hundred and fifty feet per minute, and eighteen thousand two hundred feet at the outlet. Two lives have been lost here, one by kick from a mule, the other by falling slate, the past year.

Montour mine is located two miles above Beech cliff at the head of the Montour railroad. Here, as at Beech Cliff, a stationary engine hauls the railroad cars up a grade to the foot of incline plane, and which is intended also to be used in hauling coal out of the mine at some future time. This mine is in all respects the same as Beech Cliff, both as to its ventilating arrangements and drainage, only the main-headings appear to have been driven on a ridge. The cross-headings on both sides, as well as the main-heading, are dipping, but a shaft has been sunk and drains are being cut with a view of making the roads dry. Besides double main-headings, there are eleven cross-headings; one of them runs to day-light, and all are connected by air ways. The workings were not in as good condition as those of Beech Cliff. Many of the headings are too narrow and low for safety, and the ventilating arrangements, although good, are not as well attended to. This was seen when air measurements were taken at the face of main-headings, which showed only five thousand and fifty feet per minute, whilst at the outlet the air was moving at the rate of seven hundred and fifty feet per minute, with a volume of twenty-two thousand five hundred feet per minute, passing through the furnace. In some of the headings, rooms were turned above the air course and the air was foul. These I ordered stopped until the air course would be made. The underground workings are in charge of Abel Dore.

There are seventeen mines on the Pittsburgh, Cincinnati and St. Louis railroad, and ten on the Washington branch. The latter forms a junction with the main line at Mansfield. All the coal from these mines is hauled over the main line, part going east to Pittsburgh, the balance going west.

The Keystone mines also ship by river, and all are mining the Pittsburgh seam. This seam at Mansfield lies one hundred and fifty feet above the railroad, and has a gentle rise to the north-west, averaging about sixteen inches per hundred feet. From Mansfield to Midway, there is a rise in the

railroad of one hundred and sixty feet, and here we find the coal just below he railroad track. The coal at three of the mines, viz: Primrose, Midway Block coal mines, and Walnut Hill has to be lifted by steam-power to get it high enough to load into railroad cars, whilst those mines at the east end of the road require incline planes. The valley through which this railroad runs averages about half a mile wide between Mansfield and McDonald's. After this, until we reach the summit, the rise in road brings us up near the tops of the hills, which appear rather flat, and present a more level surface. From the summit to Steubenville, the railroad descends to nearly the same level as at Pittsburgh. At Midway, the railroad passes over the top of the coal, whilst at Hamlin's station, where the Keystone mines are located, we find the coal seam about the same distance above the road as at Mansfield.

Much of the coal at the east end of this coal field has been removed by erosion. The same thing has occurred at the west end, whilst the center of this coal field, or that portion lying in Washington county, is nearly all solid coal, and some of the best and most productive mines are located on this railroad.

The first mine on this road is operated by the Phœnix Gas Coal Company, and located at Idlewood station, at the north-west side of the basin formed by the synclinal, which makes its appearance at Saw-Mill run, extends to Whisky run, thence across the country to the Washington branch. The mine is entered by drift, running nearly south, and is dipping. Besides the main-heading, there are one face-heading and four cross-headings, eighty yards apart. All are connected by air and water-ways, which conduct the water by natural gravity to the outlet. There are four openings, one being a small shaft, where they have built a furnace, intended, Mr. Negley informs me, for temporary use only, all the heading going to the dip. They have been troubled with water, but are now getting things in better shape. Mines are in charge of Joseph Stewart, mining boss.

The Mansfield Coal and Coke Company's mines are located on the north side of the railroad, a short distance east of Mansfield. They are two in number. The oldest has been in operation for sixteen years, the new mine about three years. Formerly an incline plane was used to let the wagons down to the tipple, but this year two stationary engines have been built, and wire ropes attached to do the hauling, both inside and outside. This arrangement enabled the company to dispense with quite a number of mules, and also with the incline plane. Both are double engines, and were built by James Millholland, of Pittsburgh, and, although this is one of the most difficult places to work ropes and machinery, yet it is a complete success in every respect. These two mines have a capacity of eight hundred tons daily, and have been operated very steadily the past year, employing about two hundred and fifty hands. The new mine has main-heading and three cross-headings nearly half a mile long each. All these cross-headings have a separate opening at the head for the admission of air. Near the

main-heading is a shaft ninety feet deep, with a good ventilating furnace at the bottom, and which furnishes ample ventilation.

The old mine has been very extensively worked, but will not last many more years. In this mine there are six headings, worked on the block system, all the cross-headings being driven out to daylight. At the time of my visit, both of these mines were in fair condition. Both are in charge of B. B. McDowell, mining boss, as under ground manager. Superintendent, Robert Bell.

Grant mines are situated at Mansfield, on the north side of Pittsburg, Cincinnati and St. Louis railroad, and one of the oldest mines on the road. There is an incline plane from the pit mouth to the railroad. The mine is large, employs about one hundred and twenty hands, but has not been operated very steadily. The last two years it was operated by James Jones & Co., but now by W. L. Scott & Co. The workings are nearly two miles from the front, and consist of main-heading and six cross-headings, laid out on the block system. For years the ventilating arrangements were defective, but now are very good. They consist of a shaft seven feet in diameter, eighty-five feet deep; ventilating furnace, eight feet wide, eight feet high, and thirty feet long. The velocity of the air current here was six hundred and fifty feet per minute, with a volume of nineteen thousand five hundred feet per minute. There are a number of openings and the air is well distributed through all the workings. I could find no noxious gas anywhere in the mine. There is a good roof here, but the roads are wet and muddy. The underground workings are now in charge of William Stone.

The Camp Hill mines, David Steen & Sons, operators, is a drift-opening located on the south side of the railroad. The main-heading is upwards of a mile long and has been driven through the hill to daylight for air and drainage. Main-headings are double, with seven cross-headings, partly single and partly double.

In driving through the hill a large swamp was met with, the coal dipping both ways, thus defeating the object for which the water course was driven. There not being sufficient fall, a steam pump had to be used to drain the working. This mine generates both carbureted and carbonic acid gas. The ventilating apparatus consists of shaft and stack combined, eighty-three feet deep; ventilating furnace, thirty feet long, seven feet high and seven feet wide. The air is kept to the face by means of doors, stopping, and brattice. The mine has five openings. Hauling is done partly by mules and partly by machinery. Inside workings are in charge of Harry Ollett. Air measurement showed a velocity of three hundred and seventy feet per minute; volume of air passing, fifteen thousand five hundred and forty feet per minute at the outlet.

The Pittsburgh Union mine, situated just above Camp Hill, has not been run very strong the past year, chiefly owing to strikes and want of trade. There are but two headings in the mine, which employs about twenty-five

hands. In the airway connecting the two headings there were one thousand nine hundred and seventy-five feet of air passing per minute. At the out let two thousand two hundred and thirty-nine feet per minute. The roads were overflowing with water and mud, and the furnace appeared to be totally neglected.

The Fort Pitt mines, operated by the Fort Pitt Coal Company, are situated in Robinson township, on the northwest side of the railroad and employ ninety men and boys. There are four openings in all, and two cross-headings working, both driven out to daylight. The ventilating current was rather weak here, but there was no gas or foul air present in any of the headings. A ventilating furnace will be built here when needed. The men were well supplied with timber, and things appeared in a satisfactory condition.

The Jackson mines, just above Walker's Mills, were found to consist of two headings, with three openings, employing about twenty-nine men. Ventilation natural—was satisfactory, but there was a lack of sufficient timber furnished to the men. I called the attention of the outside boss, and asked it to be remedied. Mines operated by James Ewing & Co.

The Cherry mines, operated by Morris McCue, were found well ventilated, and in fair condition. Drainage has been improved by opening new drains and cutting down the roof in main-heading, raising the track, etc. Another opening has been made this year for ventilation. This is a small mine, employing about thirty-five men, and has only natural ventilation.

The Oak Ridge mine, located in South Fayette township, Allegheny county, is a very good one. The workings are well laid out and properly conducted. About three years ago, Charles Wilhelm, the mining boss, built a good ventilating furnace, and since that time this has been one of the best ventilated mines on the Pan-Handle road. The furnace has a capacity of twenty-five thousand cubic feet of air per minute, but is seldom fired to its full capacity. The main-headings are double, and there are five cross-headings, with an air-course for all cross-headings to hole into. The roads are dry and in very good condition. The air current is circulated around the workings in two splits, and is moved at the rate of three hundred and fifty feet per minute, the volume of air passing was twelve thousand two hundred and fifty feet per minute. Ninety men find employment here.

The National mines are operated by the National Coal Company, and when visited were in fair condition. Both explosive gas and black damp are generated in this mine, but not in large quantities or sufficient to be dangerous. All the headings are dipping, which makes the hauling difficult and expensive. At the dip side of the workings are a shaft, boiler, and steam-pump, which serve for the purpose of ventilation and drainage. Roads are well drained and in good order. Mines are in charge of Edward Fisher, as superintendent.

Willow Grove, located on the south side of the road, is a drift, operated

by T. B. Robbins & Co. Eighty men are employed here, and besides the main-heading there are six cross-headings. Ventilation has been improved this year by building a ventilating furnace and putting up doors to direct the air around the workings. The general condition of the mine is much better than ever before. The air-current is circulated in two splits. Amount of air circulating here was nine thousand feet, moving at a velocity of two hundred feet per minute. There was a small quantity of explosive gas found in one of the headings, but not sufficient to be dangerous.

The Laurel Hill mine employs about one hundred and ten men and is operated by W. P. Rend & Co. There are two drifts, one having been opened this year. Ventilation by furnace, the air being carried to the face of all the headings. There are four cross-headings in the old mine. In many of the places the roof is bad, requiring great care on the part of the workmen, and one life was lost here by fall of coal. Number eleven met a large swamp; at the bottom of this swamp an up-throw of three feet was met. The airways are over three miles long, and amount of air circulating was ten thousand feet per minute.

The Brierhill mine was found in good condition. The old workings are nearly finished and new ones are being opened; about seventy men are employed. In the principal heading the room pillars have been cut and doors put at the mouth of each room. This carries the air to the face; the ventilating furnace built two years ago is rather too small to do the work required.

Primrose mine has been improved by sinking a shaft for ventilation and drainage, and steam pump will be used. It has always been found in good order when visited. Walnut Hill workings are nearly exhausted, and the company expect to open a new coal field lying west of the present one. These works have been operated steadily during the year. The works are in charge of T. B. Robbins and employ about two hundred and forty men. Drainage is effected by shaft and steam pump.

Midway Block coal mines are divided into north and south workings; they are not connected underground, hence they may be considered as separate workings. In the north side working there are main-heading and four cross-headings, two of which are worked out. There are three openings here. The workings are dry, but ventilation was defective. Since my visit a furnace has been built and the mining boss now reports the ventilation to be good. Ventilation at the south side was in fair condition for the number of men employed, but the hauling roads are wet and muddy. A new shaft has been sunk and steam pump put in, which also furnishes sufficient air-current for ventilating purposes. Twenty-four men are employed here, and the air circulating measured three thousand three hundred feet per minute and is carried to the face of the workings. About ninety men and boys are employed at both mines.

The Keystone mine is the last mine on this road, and, also, the last at this end of the District. It is situated near the State line joining West

Virginia. The mines are in Washington county, but a good part of the coal-field owned by the company is in Virginia. Mine consists of four drifts. Coal is being hauled out of two of them. The main headings are double cross-headings, eighty yards apart; single, all connected by air-way. The coal seam rests on a bed of fire-clay, and has a hard sandstone rock for roof. There is a soft slate overlying the coal, and between it and the rock, varying in thickness from one inch to two feet. This rock roof is uneven, sometimes coming down into the coal, then running up, forming a wave-like appearance. Headings are being pushed into the heart of the hill in all directions, but the mine has not been operated very strongly yet. At the time of my visit, there were forty-eight men employed and eight headings opened. The ventilating current, produced by natural means, measured, at the face of main heading, three thousand six hundred feet per minute, and at the outlet, five thousand two hundred feet. There was no noxious gas present in any of the workings.

The first mine on the Washington branch is Glendale, operated by S. B. Gregg & Brother. Ventilation is produced by furnace. The coal is nearly exhausted. There are but two headings in the mine, which employs about thirty men. Ventilating current measured six thousand seven hundred and twenty feet per minute, and is carried to the face of both headings. The mine is drained by siphon.

At the Nixon mines, operated by the Chartiers Valley Coal Company, the ventilating apparatus consists of furnace, shaft, and stack, which has capacity of twenty-five thousand cubic feet per minute. One hundred and fifteen men are employed at the works. The main headings are double, with three single cross-headings. The mine is in good condition and kept clear of noxious gas. The amount of air circulating was, at the face of the workings, eight thousand seven hundred and ten feet per minute; at the outlet, twelve thousand one hundred and eighty feet.

Black Diamond mine employs about forty men inside; is ventilated by large fire-basket. Drainage is difficult, owing to so many swamps, but I found most of the rooms dry. The air was circulated past all the working places, but the hauling road was in a very unsatisfactory condition. Mr. Baines said he would do all in his power to improve it.

The ventilation of the Summer Hill was found very satisfactory, and measured seven thousand two hundred feet at the face and fifteen thousand seven hundred feet at the outlet, and is carried to the face of every heading in the mine. A good deal of improvement has been made the last year, in the way of driving new headings and putting down new roads. The mine is troubled with swamps, making it difficult to drain.

Bower Hill, operated by a A. J. Schultze, was found in satisfactory condition, except in one of the cross-headings a number of men were working in bad air; but men were set to work to make connection with the surface, which would remedy it.

The Patterson mine, operated by the Patterson Mining Company, is a

slope, and there are also two small shafts—one for drainage by steam pump, the other has a furnace for ventilation. For the last three or four years it has not been operated very steadily and everything was allowed to go down. When the present company leased it, they found the hauling roads in very bad condition. There was no heading-room and the ventilating furnace needed rebuilding. They commenced by building a new furnace, and putting in new iron roads, side track, etc. Explosive gas is generated in all the new workings, but is well ventilated and in charge of careful and competent men.

Locust Grove and Cook's mines are at Canonsburg, and both are run to supply the local trade of the town, and both often employ less than ten men, the number fixed by the mining law, when inspection is to be had. When I visited Locust Grove the ventilation was defective. There were two openings, but not enough of air circulating for want of an air course and other means to secure proper ventilation.

Allison's mine is a drift opening and has always been found in good order. No explosive gas is generated in it.

Harding shaft is located nearly a mile from the railroad, and formerly shipped to Washington and Waynesburg by rail. This last year a narrow gauge railroad has been built to the Washington branch, and is now shipping by that road. This colliery consists of two shafts, 155 feet deep. One is used for hoisting and pumping, the other has a stairway in for traveling in and out of the mine. The working is not very large, and has never employed a large number of men, but twelve being at work when visited last, with two thousand feet of air circulating. There is some trouble with ice in the winter forming in the escape shaft, making it difficult to get up or down. Explosive gas is generated here.

Wood's mine, operated by Wettengel & Gormley, is a slope. Coal hoisted by steam power. There are three openings, and is ventilated by furnace. Amount of air circulating was 7,600 feet per minute. Fifty hands are employed in the mine. The workings are in good order and no noxious gas present.

Nimick mines, operated by Thomas Fox, employ fifty-eight men. There are two pit mouths, at which coal is hauled out. These are connected underground. The hauling roads were in very bad condition, caused by bad drainage. The old workings generate large quantities of black damp, which pollute the air. At the face of the main heading there were 4,500 cubic feet of air, and at the outlet 7,500 feet. This is one case where more air is needed than the law requires, owing to so much black damp being generated.

The Eclipse, operated by John Carlin & Co., and situated at Little Saw Mill Run, is ventilated by fan eight feet in diameter, which furnishes a good supply of pure air in the working. The main headings are dipping, and water has been very troublesome. When I visited it the water was over the roads, but they were busy driving a water course through to the old

workings, and if this does not answer, a steam pump will be put in. The workings are well laid out. The fan runs 150 revolutions per minute, and supplies 17,000 cubic feet of air per minute.

The mines operated by Gray & Bell are located on Little Saw Mill Run railroad, and are three in number, the Chess Pit, Coalridge, and the Venture. The present workings of the Chess Pit are nearly finished, and they are opening new workings at the north-west side of the present operations. A new main heading is being driven night and day to connect with one being driven from the Venture pit. When this is completed the tail rope will be extended some six or seven hundred yards further into the working. This heading will form a straight line with the main heading in the Venture pit, and the two pits will then be connected both for hauling and ventilating purposes. There is a sixteen foot fan used to ventilate the two mines. Capacity of fan is 60,000 cubic feet of air per minute.

The Coalridge mine has a ventilating furnace, or rather a pair of furnaces, of four feet each in width, which furnish large quantities of air to the workings, and the entire workings are well ventilated, but the drainage was defective for want of proper drains to carry off the water. One hundred and twenty-five men are employed at the mine. There are nine cross-headings working. Air measurement showed 17,200 feet at the outlet, and 7,100 cubic feet at the face of the working per minute.

Enterprise, operated by Hartley & Marshall, is a slope driven on the pitch of the coal to what appears to be the bottom of the basin. This is a very extensive mine, and has been operated to its full capacity the past year. The main headings are nearly two miles long, and there are nine cross-headings; one of them is being pushed night and day to a point where the overlying strata is shallow, where a shaft will be sunk, and a change made in the underground hauling. There are two shafts, one has a stairway in, the other is used for ventilation and pumping the water. Ventilation is effected by fan, boiler fires, and steam exhaust from the pump. Two hundred and fifty hands are employed inside and fifteen outside. Hauling is done partly by steam-power and wire-rope, and partly by mules.

There are only two mines on the Pittsburgh Southern railroad; both are small mines, employing about twenty men each. The product of these go to Washington, Pennsylvania. Union Valley, operated by Jacob Legler, is a drift having only two headings. Ventilation natural, and is satisfactory.

David M. Anderson mine is also a drift, and is ventilated by natural means. There are two openings, one of them a small shaft.

The Pittsburgh and Castle Shannon Coal Company's mine is located at Fair Haven. This is a very extensive mine, coal being taken out at three openings, all being connected under ground. It is ventilated by furnace, and the workings are well laid out. The hauling roads are dry and in good order. The amount of air circulating here was seven thousand cubic feet at the face of main heading and eleven thousand two hundred and fifty feet at the outlet per minute. The mine was clear of noxious gases.

The Birmingham Coal Company's mines are the largest in the district, and when run to full capacity employs between five and six hundred men. Their system of hauling, by stationary engine and tail rope, is the most extensive in western Pennsylvania, and to fully describe it would require much space. It is sufficient, however, to say that the hauling roads are six miles long, and to accomplish this long haul with ropes and steam power, requires about eighteen miles of wire rope. The pit wagons are hauled from the face of the rooms to a parting; thence by steam power to the top of the incline planes, two in number, and about one thousand two hundred feet long each. To haul the wagons from the inside partings requires two stationary engines and two locomotives, which are kept constantly busy.

Number one mine has double main-headings and nine cross-headings, the whole being connected by air-courses. Ventilation and drainage is effected by steam boilers and two steam pumps. Air measurement showed thirteen thousand two hundred cubic feet per minute. Everything appeared in fair condition for a large mine like this.

Number two mine has double main-headings and nine single cross-headings. Ventilation and drainage are the same here as at number one. by boilers and steam pump. The workings here were not in as good order as at number one. In one heading a number of men were working in very bad air. The mining boss attempted to make a return air-way by cutting the room pillars across and putting doors at the room mouths, but had failed to get the air up to the face owing to leaks, etc. Both of these mines generate explosive gas and the mine is troubled with swamps and clay veins. The roof is also bad here.

Jones & Laughlin's mine was found well ventilated and in good order every way. About one hundred and forty hands are employed here. The ventilating furnace is eight feet wide and twenty feet long, with a capacity of thirty thousand cubic feet per minute. The amount of air circulating through the workings was fifteen thousand five hundred and forty feet per minute.

The Beck's Run Mines, Six Mile Ferry, number 1 and number 2, are owned and operated by H. B. Hays & Brother. The Beck's Run mine is ventilated by furnace, and was found in good order.

Six Mile Ferry, number 1, is also well ventilated by furnace. Both of these mines have half a dozen openings each. Six Mile Ferry, number 2, has three main-headings all driven through the hills to daylight, and are in first-class order.

Street's Run, operated by I. D. Risher, is another well-ventilated mine, and has always been found in good order. It is drained by steam pump and ventilated by furnace. The air is well-distributed through the workings at a velocity of three hundred and thirty feet per minute, measuring fifteen thousand two hundred and twenty-five cubic feet. One hundred and forty men are employed inside and fourteen outside.

Munhall Brothers' mine is a new venture. Is located two and a half miles from the Monongahela river, the coal being hauled over a narrow gauge road by locomotive. The river tipple is a good substantial improvement, being the second one built by the company. The first one was carried away by the freshet of last year before it had been used. At the mines a small town has been built where the miners live.

The mines consist of three drifts; two of them are driven through the hill, furnishing good ventilation. Nearly all the men are at work in these two drifts. Number 3 is being pushed into the heart of the coal field. About eighty men are employed inside.

Green Springs employs one hundred and fifty-three men and boys. It is operated by Thomas Fawcett, and has always been found in good order. The system of hauling is the same here as at Birmingham Coal Company, by steam power and wire ropes. The distance hauled is nearly two miles. The mine is run in the spring and fall to supply the river trade. The mining boss reports the amount of air in circulation at fifteen thousand four hundred feet per minute.

The mines of Joseph Walton & Co. are situated one at Beck's run and two at West Elizabeth, in Allegheny county. At the Beck's run mine, hauling, the greater part of the distance, is done by stationary engines and wire ropes. The mine has double main-headings and six cross-headings, and employs from one hundred and sixty to two hundred men inside. A telephone connects the inside parting with the engine-house. There is also an incline plane to the river eleven hundred feet long. Ventilation was found defective in two of the cross-headings, but a force of men were at work night and day driving air courses.

Walton & Co.'s lower road at West Elizabeth is connected with the upper road underground, and both are ventilated and properly drained. There are eleven headings in the lower road and nine in the upper pit. At the lower pit there is an incline plane of one thousand two hundred feet long, and a locomotive hauls the coal from the pit mouth to the top of the incline. This fall a stationary engine has been erected at the pit mouth, which brings the pit wagons from the inside parting by wire rope. A telephone is in use here also. The workings in both these pits are well laid out and in splendid order.

Fulton colliery has been very much improved the past year, both inside and outside. They have built half a mile of outside road, opened a new pit mouth, sunk a shaft, and built a very good ventilating furnace, and are busy driving new headings. With a very small fire in the furnace, air measurement showed twenty-one thousand one hundred and twenty-five cubic feet passing per minute. Near the old working black damp is very strong, but no explosive gas has ever been seen here.

Camden mine, operated by George Lysle & Sons, was found well ventilated. One hundred and eighty men are employed here. The ventilating furnace built last year furnishes plenty of air to the workings. There were

twenty-five thousand three hundred and twenty feet per minute circulating through the mine.

William Stone's heirs operate two drifts. The old mine which will be exhausted in about a year, is ventilated by furnace. The new one is being opened pretty extensively, and they are getting ready to build a furnace, when this will also be well ventilated. These mines employ one hundred and fifty-five hands.

Allequippa, operated by Bailey, Wilson & Co., is in first-class order. The amount of air circulating here is twenty-three thousand nine hundred and fifty-five feet per minute, and is carried past every working place in the mine. The workings very large, embracing ten cross-headings; there are nine openings in all, for the admission of air the furnace has a capacity of forty thousand feet of air per minute, and everything appears in first-class condition.

Rock run is in good order. Employs eighty-nine men. There are eight headings and nine openings to daylight.

Pine run is operated by James Lynn & Co. and situated one and a half miles from the river. There are three drifts, all three being ventilated by separate furnaces, and all are worked on the double-heading system and also connected underground. The coal is nearly exhaused in the two older mines, and will be given up in about a year. Explosive gas has often been found here but not in sufficient quantities to become dangerous. The new mine is the most extensively worked. Here is one of the most effective furnaces on the Monongahela river. There are ten cross-headings at work, and the air-current measured twenty-four thousand nine hundred and sixty feet per minute. Everything was found in first-class order.

At the Jefferson mines the workings were not in very good order, but the outside improvements are very good. During the past year they have spent a large amount of money on these improvement, in ripping down roof, building new track, new pit-mouth, etc. They have also built trestle-work, put up engine and boilers, also rope machinery for hauling out of the mine. All this work is of a very substantial character. They are now turning their attention to inside improvements. A water-course is being driven, which, when completed, will drain the mine effectually. Some doors and stoppings have been put up, and now a ventilating furnace is under construction. Explosive gas and black damp are generated. It is a very hard mine to operate, owing to swamps and other natural difficulties.

Enterprise is one of the oldest mines on the river, and has been operated nearly full time this year. One hundred and eighty-five men are employed, and twenty mules are required to bring the coal forward from the face of the workings to the head of the incline plane. There are ten cross-headings at work and seven separate openings. All the coal in this field is under operation, and the owners expect to work it all out in two years, when it will be abandoned. The mine is in good working order.

The Banner works, operated by Gamble & Risher, is one of the best in

JULY, 1878.
MILLER & GREENLICH
MRS. CATHERS
G & L BENTLEY
MONONGAHELA RIVER

LAN COAL WORKINGS
GAMBLE & RISHER,
MONONGAHELA RIVER.
ON TOWNSHIP, WASHINGTON CO., PA.
JULY, 1878.
A. LEE & GREENOUGH
MRS. CHRISTIE
W. THOMPSON HEIRS
S & L BENTLEY
BARCLAY HEIRS

the district. All the improvements are of the most improved pattern and substantial character, both inside and outside. The mine is worked on the system of double heading, and the ventilating arrangements are almost perfect. All the headings are eight feet wide and six feet high, and each is provided with a good drain to carry off any water that may make its appearance. The ventilating furnace is eight feet wide and twenty-six feet long, with shaft and stack combined, one hundred and thirty feet high, and has a capacity of forty thousand cubic feet of air per minute. They have facilities for loading both by river and railroad from separate openings. The workings are in very good order, and employ one hundred and seventy-five hands.

Cliff mine employs about one hundred and thirty hands, is ventilated by furnace, and is operated by double-headings. The air current measured fifteen thousand eight hundred and twenty-five feet per minute, which keeps the mine clear of all kinds of noxious gases. This air is well distributed around the workings. It is one of the dryest mines on the river, and is in good working order.

Cincinnati, operated by J. S. Neel, is worked by double-headings, and has furnace ventilation. It is a very old mine, having been worked nearly thirty years. The coal is of good quality, but the mine has been very badly worked. The roof is good, but there is hardly a sound pillar in the whole mine, and some of the headings have been forced down by squeeze coming on before the coal has been got out. Explosive gas is generated in considerable quantities, requiring great caution in dealing with it. More than one explosion has taken place here. An explosion of gas killed Patrick Plunket on the 17th day of October last, caused by the carelessness of one of the drivers in leaving a door open a few minutes. The ventilating furnace furnishes about twelve thousand cubic feet of air per minute, but owing to bad air-ways, not more than half that amount can be got to the face of the workings.

The Garfield mine has been bought and put in operation by J. S. Neel, who has about forty men driving headings and rooms. Before much work is done, a new furnace will be required to insure proper ventilation.

The Chicago Gas Coal Company operates the Buffalo mines, and has erected a Champion ventilator this year, which is doing very well, considering the circumstances under which it is operating. The air courses are long, crooked, and contracted, and it is almost impossible for any machine to pass much air through them; but it is furnishing about four times as much air as the old furnace did, and at less cost to the company. The mine is worked on double-heading system, and the air-courses are about five miles long. Another outlet is to be had, shortly, which will be of great service in assisting ventilation. One hundred and fifty men are employed. The fan puts in circulation sixteen thousand one hundred and fifty feet per minute.

Black Hills is operated by I. D. Miller & Co.; employs forty-eight men. It is worked by single headings, ventilated by furnace. The coal field here

is about worked out. Ventilation was defective and powder smoke troublesome; ordered more air to be circulated. The amount of air circulating was two thousand two hundred feet per minute.

Courtney mine has five headings and a good ventilating furnace. Rooms are dry, with good roof. When I visited the mine, there were only sixteen men employed, but the usual number is about forty. Amount of air in circulation was four thousand two hundred and ninety feet per minute, but the furnace has a capacity of twenty-five thousand feet per minute. A large swamp is very troublesome here.

The New Eagle was found well ventilated, but the hauling roads require attention. The furnace, which supplies plenty of air to the workings, appears to be well attended. There are four separate openings for air, and seventy men are employed. Air measurement showed eleven thousand four hundred cubic feet of air per minute. Explosive gas is generated in small quantities.

Catsburg, operated by the Harlem Coal Company, also generates explosive gas in considerable quantities. A good deal of blasting is done, and powder smoke is troublesome. The air current here was not as strong as desired, and I suggested the building of a good ventilating furnace. At present, they have a large fire-basket in use. The amount of air circulated to the face of main headings was six thousand nine hundred feet per minute, and at outlet thirteen thousand four hundred and twenty feet. About one hundred and thirty men are employed. There is a large swamp, and nearly all the headings have to cross it.

Black Diamond, operated by the same company, has double headings, is well laid out, and fairly ventilated by furnace. There are ten headings, and six openings for ventilation. Amount of air at face of main headings was eight thousand two hundred cubic feet; at the outlet, ten thousand feet per minute. About one hundred men are employed.

Stockdale has been leased by Jacob Tomer and McKinley; has furnace ventilation, three separate openings for air, and eight headings working—some of them are double. I found bad air in two of the cross-headings, and ordered changes made to remedy it. The furnace is located on No. 4 heading, and circulates fifteen thousand one hundred and twenty cubic feet of air through the workings; six thousand one hundred feet of this reach the main heading. Seventy-five men are employed inside. Fire-damp has not been seen here for some time.

Abe Hays is very well ventilated. The new furnace furnishes all the air required for the mine. Seventy-five men are employed inside. Main headings are double, with four cross-headings. Air circulating was 15,120 cubic feet per minute, well distributed throughout the mine, and everything was found in first-class order.

The American mine, F. H. Corsen, operator, is worked on the double headings system, and ventilated by small furnace. There are seven headings in all, and forty-six men employed; inside workings are in fair condition; 5,300 feet of air are circulated to the face, with 7,200 feet at the outlet.

Warne's mine, operated by Warne Brothers, has six headings. Ventilation is due to boiler and furnace, with steam pump for draining the mine. Fire damp is generated, but none was found when visited. Some of the headings had bad roof, and needed careful attention. Thirty-five men are employed. Air in circulation 5,720 cubic feet per minute.

Wood's Run is operated by Isaac Leadbeater & Co., and was found in first-class order. Twenty-eight men are employed inside, and the furnace circulates 6,760 feet of air. The new company has given the mine a general overhauling, and the workings are now in good condition.

Caledonia is now operated by Thomas J. Woods & Co. When I visited this mine in October the ventilation was in very bad condition. The mine was full of powder smoke, and the atmosphere unbearable. Since Mr. Woods took charge a furnace has been built, which he informs me, is doing very well, furnishing the required amount of air to the workings. The company intend to make further improvements as soon as possible.

Ventilation at the Champion mine was defective, and there was much powder smoke in the principal headings, and not sufficient air in motion to sweep it out of the mine as quickly as required. There is a good ventilating furnace, but the return air-way is partly closed by falls and water, thereby contracting the air-way and impeading the air in its course around the workings. Seventy-one men are employed. Amount of air circulating was 3,000 feet at the face of No. 1 heading, and 6,100 cubic feet per minute at the outlet.

Eclipse is well ventilated as any mine on the Monongahela river. It has been much improved the last year, and the greater part of the workings are new. The furnace built two years ago furnishes plenty of air, and everything is in good order. It is operated by J. S. Neel.

Neel's mine, operated by J. S. Neel, also is ventilated by furnace, but is very much neglected. This mine furnishes an example of how badly a mine can be ruined by incapacity, carelessness, and downright ignorance of a practical knowledge of mining by those in charge. What might have been one of the best and most productive mines in the district has been made to cost its owner thousands of dollars, and now he has a mass of ruins for his pains. Although the furnace is capable of furnishing sufficient air to render it pure and healthy at all times, yet a visit always finds the men working in an atmosphere reeking with powder smoke and other impurities. I am informed that for a week at a time there is no fire in the furnace, and, at my last visit, the furnace bore good evidence of having just been kindled after the roadman discovered I was in the mine. I complained of this to the owner, and asked him to place the mine in charge of some competent person.

Tremont mine, John A. Wood & Sons, is worked on the double-heading system. It is a good mine, and is well ventilated by furnace. The workings are well laid out, and there is very good roof. Ventilation is carried to the face of all headings. The amount of air in circulation was fourteen thousand four hundred feet per minute.

The Clipper mine has been bought and put in operation by the Clipper Coal Company. It is worked on the double-heading system, and has furnace ventilation. I found thirty men at work putting things in order. For the last few years it has been operated on a lease, and has been badly worked. There are ten headings, and the air measured at the face of the main headings three thousand one hundred feet, and at the outlet, seven thousand nine hundred and eighty feet per minute.

Carondelet mine is operated by Frazer & Frye, is a good mine, and in good order. Although the amount of air circulating is ample, yet no blasting is allowed until four o'clock, P. M. Hence the mine is always free from powder smoke and other impurities incidental to blasting coal of a hard nature. Ten thousand eight hundred cubic feet of air were in circulation here per minute.

James Rutherford operates the Little Red Stone mine, and employs thirty-eight men. There is only natural ventilation here, and the men are not well supplied with air at all times, the weather affecting the air current at times unfavorably.

Turnbull & Hall employ one hundred and thirty men and seven mules. The mine was found in bad condition as to ventilation, and a part of it is badly drained. The company has had considerable trouble with water, swamps, and bad coal. Some of the headings have had to be abandoned as unprofitable, on this account. The furnace and brick-stack are too small to put in circulation the amount of air required here. Another shaft will be sunk and a good furnace built the coming spring. They are also opening a new coal field, which, it is hoped, will prove more profitable.

Excelsior mine, Jacobs & Armstrong, operators, has a new ventilating furnace, which furnishes ample ventilation for the mine. They have made many improvements to the mine, which has been very badly worked. A new tipple has just been completed at the river.

Bargeddie mine, James Harris & Company, operators, has only natural ventilation, and the quantity of air in circulation was not sufficient to ventilate the mine properly. There was some powder smoke, the result of blasting coal. This mine needs artificial ventilation. A good furnace will be the most practicable here.

The Alps Coal Company have built a new river tipple and all the necessary abutments for river business, and are now opening a mine, driving headings, etc., in order to reach their large coal field.

Little Alps, Nos. 1 and 2, are both nearly exhausted of their coal. The ventilation in Alps No. 1 was unsatisfactory, but the small amount of coal remaining will not justify a large outlay of capital, and it will be abandoned in a few months.

Cedar Hill mine, Morgan & Dixon, operators, has four cross-headings working. The roof is safe and workings dry, but the ventilation is not satisfactory. Artificial ventilation is required here. There is a good shaft at the face of the main heading, but a furnace is required here. Sixty-five men are employed. The roads are dry and in good order.

The Joseph Garrow mine has natural ventilation. There is but one heading, which connects with an old drift on the river bank. The air was found in fair condition for a mine of its character. Twenty-two men are employed.

Knob Colliery is a slope, and there is also a shaft sixty feet deep, for drainage and ventilation. This year a new ventilating furnace has been built, which, owing to its peculiar construction, was not working very well. This admits of a remedy, however, which will be applied. One of the headings was wet and badly ventilated. Fire damp is given off here, and requires strict attention on the part of the mining boss. Air circulating at the outlet was twelve thousand one hundred feet per minute, but only four thousand six hundred and eighty were got to the face of the workings.

The Globe and Dexter mines are owned and operated by Crowthers, Musgrave & Co. The Dexter has not been operated this year, but the owners are going to operate it. The Globe is a pretty extensive mine, having six cross-headings at work. Explosive gas is not found here, but a part of the mine has bad roof, and some changes in the hauling roads are under consideration, which will cut off the workings having bad roof. A good ventilating furnace, built the past year, will be put to work and the mine thoroughly ventilated.

The mines on the Hickman branch of the Baltimore and Ohio railroad are Spring Grove, Sterling, Nos. 1, 2, and 3, and the Cora mine. Spring Grove, Cochran & Keister, is a drift; employs thirty hands inside and about the same number outside. There are three cross-headings, all in fair order, and are fairly ventilated, there being six openings to daylight. One hundred coke ovens consume the product of the mine.

The Sterling coke works are operated by J. M. Schoonmaker, and consist of four mines, Nos. 1, 2, and 3 are on the Hickman branch, No. 4 on the main line. The works are all connected underground and very extensive, and are amongst the very best in the coke region. They have been kept in operation steadily the past year, the average output being about twenty thousand tons per month. At Nos. 1 and 4, new drifts and headings have been opened in regular order. The hauling roads are well graded and kept in splendid condition for bringing the coal forward to charge the numerous coke ovens. A large pump, situated at No. 4, on the bank of the Youghiogheny river, supplies the water used for cooling the hot coke, by means of a pipe line carried through the mine under ground. The number of coke ovens here is four hundred and sixty-three. All the mines are in good order.

The Cora mine, situated just above Sterling, on Hickman branch, is owned and operated by Jacob Newmyer & Sons. Employs twenty-seven men, and has forty-two coke ovens. The workings are new and in fair order.

At the Fort Hill mines, operated by the Cleveland Rolling-Mill Company, there were fourteen men at work inside, and a large force outside, building coke ovens, laying track, etc. Forty-nine coke ovens were in blast. The workings are just commenced to be opened up, there being only

double main heading and one cross-heading. Here the men had been set to work before an air-course had been provided, and the air was foul and very smoky. I ordered an air-way to be driven along side the heading.

Fayette mines employ twenty-seven men as miners and twenty-six coke drawers, and have one hundred and one ovens in full blast. The east side of working is through to the Jackson mines. Ventilation here was good, but on west side was defective. There was plenty of air circulating on main heading, but was not carried to the face of workings.

Jackson Mines were found in poor condition as to ventilation, but in good order otherwise. There being no artificial means applied, the circulation of air coming from Fayette mines brought all the foul air and black-damp generated there into Jackson mine workings. There were also a number of men working beyond the air current which made the air in the working place foul and charged with carbonic acid gas.

Tyrone mine ventilation was also bad; the air is fouled here from connection with Frick & Co's. mines, and for want of artificial means. This, however, will be remedied as they are sinking a shaft where a furnace will be built. There are five cross-headings working and forty-four men inside and about thirty outside, with one hundred and thirteen ovens.

Frick & Co. operate eleven mines in Fayette county. Henry Clay mine is on the Baltimore and Ohio railroad at Broad Ford; the balance are on the Mount Pleasant Branch and operate one thousand one hundred and seventy coke ovens at these works alone. The inside employés number about four hundred hands. I have never been furnished a statement of number of hands outside but is not much less than the number employed inside.

But two of those mines have ventilating furnaces. At the Valley works a good furnace has been built, and that mine is well ventilated and very well conducted. When the stack is completed the ventilating current will equal thirty thousand cubic feet per minute.

Ventilation at the Fountain mine was in good order there being six openings to daylight and but twenty-one men employed in the mine.

Summit mine has a small furnace but black-damp is so strong, the amount of air put in circulation is unable to cope with it. The air was so heavily charged with this gas a light would hardly burn in it. The hauling roads were also in a bad condition. A good shaft and furnace is being built here.

The Globe, operated by the same company, was badly ventilated owing to the incompetency of the mining boss in charge. Two years ago Hutchinson Brothers built a good furnace here, but the headings are kept behind the requirements of the mine as well as the necessary air courses and the men are kept at work ahead of the air current. Under such arrangement the mine is very little better for having artificial ventilation. The remedy for this is to employ a more competent man as mining-boss.

The Eagle and Henry Clay slope have bad ventilation, neither one had artificial ventilation. All the workings of the Henry Clay are in good order and well laid out, but the amount of black-damp generated requires a

vigorous current of air to render it harmless. The Eagle workings are in bad order; owing to former bad mining a great deal of coal has been lost by a squeeze coming on. This also liberated large quantities of carbonic acid gas, and more air is required to dilute it than nature alone produces. Good shaft and ventilating furnaces are being built at both Henry Clay and Eagle mines.

The Frick mines, Morgan No. 1 and 2, also Foundry mine, were found in fair condition as to ventilation and drainage. In the Morgan mine I found the air current measured 12,253 cubic feet per minute, and at the furthest heading it was 5,060 cubic feet per minute, but in two of the cross-headings it was not carried to the face. Improvements were ordered here to remedy it.

Ventilation at the Clinton mine has been improved by building a furnace and drainage by cutting a good waterway out to daylight, thus securing natural drainage. They have also erected a stationary engine at the pit-mouth for hauling the pit-wagons out of the swamp.

Franklin mine employs seventeen men inside. Was in good order. There are but two headings, one of them having a shaft near the face for ventilation.

Furnace mine is operated by Everson, Macrum & Company. Employs thirty-four hands and five mules inside; has four cross-headings and four separate openings. There is a ventilating furnace kept constantly at work. The air current was found ample for the requirements of the mine, and showed 9,680 cubic feet per minute. The hauling roads were not in as good order as last year, owing to water having been hauled over them.

Kiffer's mine is in good order since the new opening has been made. I found sixteen men at work inside. The air current measured 6,125 feet at the outlet and 3,650 at the face of the workings.

The Dexter employs fourteen hands inside and about the same number outside. Ventilation natural. At all my former visits this mine has always been found in good order, but at my last visit I found the roads wet, and in one of the headings black-damp.

Rafferty & McClure have three mines in Fayette county, namely: Painter No. 1 and 2, and Diamond mine. The two Painter mines are well laid out and employ about one hundred hands inside and ten mules. The headings were all in good condition, but ventilation was defective. As a remedy for this I suggested that a good ventilating furnace be built at the foot of a shaft already sunk.

The Diamond ventilation was also defective; but since my visit a furnace has been built, and the mining boss reports plenty of air now.

Pennsville mine, formerly owned and operated by A. H. Sherrick, but now operated by Tintsman & Co., has seventy coke ovens, and employs twenty-five men inside; is ventilated by furnace. I visited it after work was done for the day and the furnace fire was low, yet there was a fair current going through the workings with little noxious gas present.

Moyer's, operated by the Cleveland Rolling Mill Company, is a slope; employs sixty hands inside and five mules. Since this company began to operate it they have made very extensive improvements both outside and

in the mines. Outside improvements are, one hundred and fifty new ovens, new engine, and boilers, wire rope, etc., for hauling out of the mine; also, new coal bins, tipple, and pit mouth, with apparatus for hauling material to charge coke ovens. These improvements are all of good, substantial character, and among the best in the coke region. The under-ground workings are being pushed as fast as possible with a view of getting out a large amount of coal to charge the two hundred and twenty-five ovens. When needed, a good furnace will be built at the foot of a shaft already sunk.

The mines of the Pittsburgh and Connellsville Gas, Coal and Coke Company are situated at Connellsville, and consist of one shaft, a slope and a new drift opening. The shaft is one hundred and thirty feet deep; the slope three hundred and ten feet. All the hoisting and pumping is done by steam power. The shaft is sunk in the bed of the Youghiogheny river, from which the mine draws a large quantity of water. The slope workings are dry and nearly exhausted of coal, but a part of the shaft workings are wet, and both are badly ventilated. In the shaft working there is good deal of pillar working, and large quantities of carbonic acid gas is generated, which follow the working face as far as worked back. The amount of air circulating is not sufficient for the demands of the mine, and should be increased. This could be accomplished very soon if the superintendent would take the matter in hand. He has a Champion ventilator packed away in the work-shop, and why it is not erected is one of those things no person can find out. There are two hundred and ninety-six coke ovens in full blast, and forty new ones built the past year, or three hundred and thirty-six in all.

The Connellsville Coal and Coke Company have now got their new coke works in full operation. The hoisting shaft was sunk three hundred and seven feet to the coking bed. It is thirteen feet wide and twenty-four feet long, lined from top to bottom, divided into three compartments, two for the cages to work in and the other for pumping the water and ventilation. The engines, boilers, and steam pumps are all new and in splendid condition. The arrangements for handling the coal are first class, both at the top of the shaft and underground. The mines have been started on the double heading system and a shaft for ingress and egress has been sunk this year, and a good stairway put in. This will also furnish air space for inlet of air to the workings. The main-headings are being pushed night and day, and new cross-headings turned off as fast as room is made. Explosive gas is generated in large quantities, which is met by a vigorous current of air, furnished by a Champion ventilator at the top of outcast side of the main shaft, and acting as an exhaust fan. The underground workings are in charge of Elijah Parker, one of the best practical miners in the State. Besides the boilers and engines the improvements on the surface are two hundred coke ovens, railroad track, coal bins, etc. They have built quite a number of good dwelling-houses, with regularly laid out streets. This is the town of Trotter, and has its little school house, for the education of the miners' children.

Connellsville Coke and Iron Company's shaft is situated at Leisenring, Dunbar township, Fayette county. This is the deepest shaft in Fayette county, and is supposed to be at the bottom of the great Connellsville coking basin. It is three hundred and seventy-two feet deep. They also have another shaft nearly completed, and are pushing the heading to get connection as soon as possible. Double-heading is the system on which the mine will be operated. A Champion ventilator has been erected this year. When all complete, there will be four hundred coke-ovens.

Morrel and Wheeler slopes are operated by the Cambria Iron Company of Johnstown, and are both connected under ground. Morrell slope is twelve hundred feet deep, and employs about one hundred and seventy men inside, and nearly the same number outside. It has shaft and good stairway for ingress and egress. There is also another opening used by the workmen for traveling road. Eight wagons are hoisted each trip, steel ropes being used. The machinery and boilers are all first-class. They have four hundred coke-ovens here, two hundred being charged each day. At my last visit, the underground workings were in fair condition. Ventilation measured at the face eight thousand two hundred and eighty feet, and at the outlet twenty-seven thousand cubic feet per minute.

Wheeler slope has one hundred coke-ovens, and employs forty men inside. Hoisting here is done by chain instead of wire rope, five wagons being hoisted each trip. A part of the working was under water, and troubled by squeeze coming on. There was no good traveling road for ingress and egress, the men having to travel the slope, which is both hot from escaping steam, and dangerous by reason of the wagons passing up and down. Mr. Fulton, the general manager, gave instruction to the superintendent to have a good traveling road provided. Ventilation was in fair condition.

Uniondale mine was found in poor condition. Ventilation was defective, and not carried to the face of the workings as it should be, caused by the mining boss not putting in the required doors and stopping. The traveling road was not completed to the foot of slope, and the hauling roads in bad condition.

Anchor mine is also a slope, and five wagons are hoisted at once. There are one hundred ovens here, employing a force inside and out of eighty men. Mine has five cross-headings. Ventilation is effected by heat from the steam pipes and steam exhaust from the pump. Ventilation here was fair, except in one of the cross-headings. The new mining boss had not taken proper care of the traveling road, and it was not completed to the lower level heading. In consequence of this, I found the men traveled the slope, which is dangerous at all times when they are hoisting. New hoisting machinery has been built here the past year, all of which is in good order.

Dunbar coke-works, which is operated by Colvin & Co., is a slope seventeen hundred feet deep. Ventilation, which is good by steam exhaust, measured seven thousand two hundred cubic feet at the face, and twenty thousand five hundred and eighty feet at outlet. I found that during the last year a squeeze had nearly closed the air and traveling road, and the

men were using the slope. To remedy this, I ordered a new road to be made by cutting the pillars across alongside of the slope, and opening a new pit mouth.

Deer Park is also a slope, eighteen hundred feet long, and attached to the works are one hundred ovens. Ventilation here is very good, and, except some bad roof in one of the headings, the mine is in good working condition. They were busy making a new traveling road, which would be completed in a short time.

The Dunbar Furnace Company operates the mines at Hill Farm and Ferguson slope. Both are slopes. Hill Farm is twenty-two hundred feet deep, and Ferguson about two thousand feet. At both mines the iron ore is got by stripping in the rooms after they have been worked up to the upper level heading. They are also connected underground. There was plenty of air circulating on the slope, but not quite satisfactory at the interior end of the workings. The traveling road was also out of order.

At the Ferguson slope the old traveling road had been closed by crush coming on, and I found them working on a new one; with this done, the mine will be in good order, ventilation being much better than at Hill Farm. New engines and boilers have been erected this year.

Mount Braddock is also a slope, and employs one hundred and twenty men inside and outside, and there are one hundred and twenty-seven ovens. The amount of ventilation is ample if carried to the face of the workings. There is a good deal of bad roof and squeeze, but the parties who have the management are doing the best they can under the circumstances.

Percy mines is a slope, and had no proper traveling road. All the headings are double except the slope, which is single part of the way. Ventilation is ample and well conducted through the working. A small shaft near the outcrop serves as inlet, the slope being the outlet. New headings are being opened at the bottom of slope.

The Youngstown Coke Works, in all, employs about one hundred and eighty hands. It was commenced about two years ago by driving double-headings, one to be used for hoisting, the other for traveling road. Since that another road has been made, and now there are two good roads for ingress and egress, and no miner is required to walk on the slope. The double-heading system has been carried out all through the mine, and all were found in good order. Ventilation measured 23,300 cubic feet per minute. There are seventeen headings in the mine.

Lemont was found in better condition than ever before, and the last year there has been a good deal of pillar work. There are six headings working, employing forty-two men inside, and there are one hundred and twenty ovens. Iron ore is mined from under the coal, but not in connection with the coal.

Stewart Iron Co.'s mines are situated below Uniontown on a short branch railroad, and connects with the Uniontown branch of the Baltimore and Ohio. The slope is sunk seven hundred feet. Partly in the rock there

is also a shaft with stairway for ingress and egress. A number of headings have been started on the south side of the slope, and I found everything in good condition. They have one hundred and twenty coke ovens, and eighty of them in operation. These are new works just commenced.

Leith colliery, operated by the Chicago and Connellsville Coke Company, is situated at Uniontown, Fayette county. Half a mile south-east of the main shaft, is an air-shaft, nearly completed, and both are good openings. The five feet seam was struck at a little over 200 feet, and the nine feet Connellsville coking seam 120 feet lower down. The shaft is divided into three compartments, two for hoisting, the other for ventilation, acting as return. Until the air-shaft is completed the main shaft will be the downcast, after that the former will be the downcast. Ventilation is furnished by Champion fan running at 350 revolutions per minute. Like all the deep workings in this coal basin, explosive gas is generated in considerable quantities, but has opposed to it large volumes of air to render it harmless. As the workings advance bad roof and soft bottom was met with which caused much trouble. A pair of headings are being driven night and day to reach the air-shaft as it approaches completion. They will have, when all are completed, 200 ovens.

The Red Stone, two miles south of Uniontown, is a new works, the whole of the work having been done the last year. The mine is a slope, single track, with an air-way running back to opening at crop line. There is 171 coke-ovens, and 200 more building. Fire-damp is not seen here.

The Fayette Coke and Furnace Company mine is situated at Oliphant's furnace. There are two slopes driven in the coal, starting at the out-crop of the seam. Formerly coal was mined along the out-crop by stripping and coked on the ground for use at the blast furnace. This, however, became unprofitable, and a drift was commenced and new ovens built. They have now 130 in blast. The arrangements for handling the product of the mines and ovens are good.

Fairchance mines are situated near Fairchance furnace. Employ 33 hands. This is also a slope, and there are 36 coke ovens. Some iron ore is mined also. The mine has five or six opening, and is fairly ventilated, but not very well drained, but they are driving a water course to remedy this defect.

There are a number of small mines on the Berlin branch of the Baltimore and Ohio railroad, none of them employing very many men and not working very steadily.

Rody Maher has opened a drift in a four feet seam, and when visited had four men at work, but has since increased his force to over ten. Had but one opening when visited.

Thomas Price had a drift opened and preparing to ship coal. Employed five men, increased since to over ten.

Philson Coal and Iron Company usually employ about thirty men, but were idle. There are two openings here, but ventilation was defective owing to badly constructed air-ways and artificial means wanting.

The Berlin mines, employing from twenty to thirty hands, are operated steadily and well ventilated by furnace. The ventilating shaft is sixty feet deep and furnishes about ten thousand cubic feet of air per minute to the workings. The seam is four feet, of good quality, with a hard blue slate for roof; about eighteen inches is blasted down to make room for mules. Everything was in good order. It is operated by B. D. Morgan & Co., of Berlin.

The Hoffman mine and Swede Coal and Iron Company's mines are idle.

The Hirsch mine, operated by the Baltimore and Cumberland Coal Company, situated at Keystone junction, Somerset county, employs thirty-five men. There are two drifts, of small extent, and a slope, the coal of all is nearly exhausted. The roads are in bad condition, and roof in many places dangerous.

There are nine mines on the Salisbury branch, in Somerset county, some of them employing less than ten men when times are dull, and at other times twenty-five to thirty, just to suit the demand of the market for this coal.

The Shaw mine, operated by the Cumberland and Elklick Coal Company, is the largest mine in this region, but between strikes and bad trade has not made over half time this year.

The Keystone is a pretty extensive mine, employing about eighty men and ten mules. For the last two years it has been working out pillars, at the same time opening up new workings. It has been operated steadily, except during strikes. Good drains and new iron road have been put in some of the headings, and a new incline plane built this year.

The Meyersdale Coal Company employs thirty-four men in their drift, but has not run steady this year. Another opening has been made, which improved the ventilation.

Thomas Williams operates two small mines. The coal is nearly exhausted in the Cumberland mine, and the West Salisbury has not run very steady. From forty to fifty hands are employed in the two.

James Cochran, operating the Big Vein mine, employs twenty men, is troubled with water, and when visited last had but one opening, but driving for another.

Tub Mill Run colliery, situated on the run, in the Salisbury basin, near Salisbury, is operated by W. J. Smith & Co., employs forty men; has been operated steady. Like all the mines in this region, it is a drift, the coal lying high up the hill. The seam, about nine feet, is counted the best coal in the basin. About two hundred yards south of the main drift mouth is another drift, used as an air-way and a small shaft near the main heading. It has been badly used up by incompetent management. Ventilation was very defective, not sufficient to carry off the miners' powder smoke; but they inform me that a shaft and furnace is about completed, which will no doubt prove a remedy for bad ventilation. Two lives have been lost here the last year by falls of coal.

The Salisbury Central Coal Company's mine, on Grassy run, is also a

drift. Besides main heading there are four cross-headings. I found twenty-three men at work, the usual force being about forty. Ventilation was unsatisfactory, and they inform me the furnace is not yet completed.

The great trouble with this region the last two years has been strikes, which have resulted in great loss to everybody connected with mining. When trade was good the men would strike, when trade was bad operators had to stop.

There are ten mines in Bedford county, two situated on Sandy run and eight on Six Mile run. The Juniata Valley Coal Company's mine is on Sandy run on the estate of the Cambria Iron Company. It is a drift opening, employing twenty-five men and four mules. This is a soft, semi-bituminous seam, averaging four feet thick, with very good roof. Ventilation is effected by a small furnace located at the mouth of an old drift. A measurement showed 3,750 feet at the outlet and 2,100 cubic feet per minute at the furthest heading. There was some black-damp present in some of the rooms.

The Lane colliery, operated by the Sandy Run Coal Company, is also a drift. Thirty-one men are employed here, and the amount of air circulating was 9,840 cubic feet per minute. There are three headings, the air carried to the face of all, and the mine is in good condition.

Mount Equity, situated on Six Mile run, is operated by the Kemble Coal and Iron Company. The Cook seam, in which the drift is opened, lies about fifty feet above the railroad track. The seam is four feet of good coal. A part of the bottom coal is not good and is left in the mine. It is one of the oldest mines on Broad Top, and the workings are rather extensive. A good deal of improvement has been made since the new lease has been obtained in the way of driving new headings, laying down iron track, etc. They have also sunk an air shaft, which is to have a good ventilating furnace. Seventy-six men are employed here. The product of the mine is manufactured into coke, after being cleansed of all impurities by breaking and washing, and consumed in the two blast furnaces. There are eighty-eight coke ovens here.

E. P. Jenkins is employing about twenty-two men at Duvall's drift and shipping about eight hundred tons per month.

Conard shaft, R. B. Wigton & Sons operators, employs twenty hands. There is a shaft at which the coal is hoisted and a drift for traveling road. It has not been run very steadily this year. The air in circulation here measured 3,600 cubic feet per minute.

The Defiance is operated by A. Covalt & Company. This is a drift opening, of easy access to the railroad, and has also an air-course drift out to the crop line. Ventilation was very defective, but this year they have built a ventilating furnace, which, I have no doubt, has improved it.

The Rummell colliery has two drifts opened; are operated by Rody Maher. Only one was working, employing twenty men, and was found in fair condition, both as to ventilation and drainage.

TABLE I.--SHOWING LOCATION OF COLLIERIES IN THE FIRST BITUMINOUS MINE DISTRICT.

NAME OF COLLIERY.	Name of Company.	Location--County.	Name of Superintendent.	Post-Office Address of Company.
Montours,	Imperial Coal Company,	Allegheny,		Imperial post-office.
Beech Cliff,	do. do.	do.		do.
Phœnix,	Phœnix Gas Coal Company,	do.	F. C. Negley,	Second avenue, Pittsburgh.
Bells Mines, No. 1,	Mansfield Coal and Coke Company,	do.	Robert Bell,	382 Penn avenue, Pittsburgh.
Bells Mines, No. 2,	do. do. do.	do.	do.	do. do.
Grant Mines,	W. L. Scott, & Co.,	do.	George Hosack,	Mansfield Valley.
Camp Hill,	David Steen & Sons,	do.	W. J. Steen,	Fourth and Try streets, Pittsburgh.
Fort Pitt,	Fort Pitt Coal Company,	do.	J. E. McCrickart,	337 Liberty street, Pittsburgh.
Pittsburgh Union,	Joseph McConnell,	do.	Joseph McConnell,	Walker's Mill, Allegheny co.
Jackson Mines,	James Ewing & Co.,	do.	James Ewing,	do. do.
Cherry Mines,	Morris McCue,	do.	Morris McCue,	Fourth and Try streets, Pittsburgh.
Oak Ridge,	Oak Ridge Coal Company,	do.	George Schuderberg,	do. do.
National Mines,	National Coal Company,	do.	Edward Fisher,	do. do.
Willow Grove,	T. B. Robbins & Co.,	do.	Charles McDonald,	Midway, Washington co.
Laurel Hill,	W. P. Rend & Co.,	do.	Hugh Knox,	413 Liberty street, Pittsburgh.
Glendale,	S. B. Gregg & Bro.,	do.	S. B. Gregg,	Mansfield Valley, Allegheny co.
Nixon Mines,	Chartiers Valley Coal Company,	do.	David Boden,	do. do.
Black Diamond,	William Bains & Co.,	do.	William Baines,	Woodville, Allegheny co.
Summer Hill,	Frank Armstrong,	do.		Fourth and Try streets, Pittsburgh.
Bower Hill,	A. J. Schultz,	do.	A. J. Schultz,	Woodville, Allegheny co.
Patterson Mines,	Patterson Mining Company,	do.	Alexander Patterson,	Mansfield Valley, Allegheny co.
Wood's Mine,	Wentengel & Gormley,	do.		Thirty-sixth ward, Pittsburgh city.
Nimick,	Thomas Fox,	do.	Thomas Fox,	do. do.
Chess Pit,	Gray & Bell,	do.	Martin Gray,	Banksville, Allegheny co.
Venture,	do.	do.	do.	do. do.
Coal Ridge,	do.	do.	do.	do. do.
Eclipse,	John Carlin & Co.,	do.	John Carlin,	Thirty-sixth ward, Pittsburgh.
Enterprise,	Hartley & Marshall,	do.	Roger Hartley,	Banksville, Allegheny co.
Castle Shannon,	Castle Shannon Coal Company,	do.	J. M. Bailey,	Carson street, Pittsburgh.
Keelings, No. 1,	Birmingham Coal Company,	do.	Joseph Keeling,	South Side, Pittsburgh.
Keelings, No. 2,	do. do.	do.	do.	do. do.
American Coal Works,	Jones & Laughlin,	do.	James Doran,	Second avenue, Pittsburgh.
Heberman,	Joseph Walton & Co.,	do.	Morris Capp,	Water street, Pittsburgh.
Beck's Run,	H. B. Hays & Bro.,	do.	John Trautmannn,	do. do.
Six Mile Ferry, No. 1,	do. do.	do.	John Watson,	do. do.
Six Mile Ferry, No. 2,	do. do.	do.	do.	do. do.
Street's Run,	I. D. Risher,	do.		Hope Church, Allegheny co.
Bellwood Mine,	Munhall Bros.,	do.		Homestead, Allegheny co.
Green Springs,	Thomas Faweett,	do.	Thomas Carrick,	Water street, Pittsburgh.
	William Neel's heirs,	do.		McKeesport, Allegheny co.
William Stone,	William Stone's heirs,	do.	George W. Stone,	do. do.
Amity,	J. C. Risher & Co.,	do.		160 First avenue, Pittsburgh.
Camden,	George Lysle & Sons,	do.	Joseph Griffith,	69 Water street, Pittsburgh.
Allequippa,	Bailey, Wilson & Co.,	do.	James Wilson,	Camden, Allegheny co.
Rock Run,	W. J. Snodgrass,	do.	W. J. Snodgrass,	do. do.

Pine Run, No. 1,	James Lynn & Co.,	do.	John O'Neil,	Water street, Pittsburgh.
Pine Run, No. 2,	do. do.	do.	do.	do. do.
Jefferson Mines,	Foster, Clark & Wood,	do.	S. C. Clark,	Coal Valley, Allegheny co.
Enterprise,	O'Neil & Co.,	do.		Elizabeth, Allegheny co.
Lower Road,	Joseph Walton & Co.,	do.	John W. Rike,	Water street, Pittsburgh.
Upper Road,	do. do.	do.	do.	do. do.
Fulton Colliery,	George Jones' heirs,	do.	Thomas Jones,	West Elizabeth, Allegheny co.
Brier Hill,	J. D. Sanders & Co.,	Washington,	J. D. Sanders,	McDonald, Washington co.
Prim Rose,	Robbin's Block Coal Company,	do.	T. B. Robbins,	Midway, Washington co.
Walnut Hill,	S. B. Robbins & Co.,	do.	do.	do. do.
Midway Block Coal Company,	G. W. Crawford & Co.,	do.	G. W. Crawford,	do. do.
Keystone Mines,	Keystone Coal Company,	do.	J. M. Bailey,	90 Water street, Pittsburgh.
Cook's Mine,	John Cook,	do.	John Cook,	Canonsburg, Washington co.
Locust Grove,	W. S. White,	do.	W. S. White,	do. do.
Allison's Mine,	J. Allison,	do.	J. Allison,	Washington, Washington co.
Enterprise Mine,	T. H. Simons,	do.	T. H. Simons,	do. do.
Union Valley,	Jacob Legler,	do.	Jacob Legler,	Finleyville, Washington co.
Anderson's Mine,	D. M. Anderson,	do.	D. M. Anderson,	do. do.
Shireoaks,	Blackburn & Mort,	do.	Robert Blackburn,	Shireoaks, Washington co.
Banner Works, No. 1,	Gamble & Risher,	do.	James H. Gamble,	116 Water street, Pittsburgh.
Banner Works, No. 2,	do. do.	do.	do.	do. do.
Cliff Mine,	Scully & Co.,	do.	Robert Greenhalgh,	Coal Bluff, Washington co.
Coal Bluff,		do.	James Logan,	do. do.
Cincinnati,	J. S. Neel,	do.	Miles Gibson,	Monongahela City, Washington co.
Buffalo,	Chicago Gas Coal Company,	do.	W. J. Morgan,	415 Liberty street, Pittsburgh.
Garfield,	J. S. Neel,	do.	Miles Gibson,	Monongahela City, Washington co.
Black Hills,	I. B. Miller & Co.,	do.	I. B. Miller,	do. do.
Courtney,	Courtney Coal Company,	do.	William McGonegel,	Courtney, Washington co.
*Mingo,		do.		
New Eagle,	Lindsey & McCutcheon,	do.	Thomas S. Hutchinson,	Monongahela City, Washington co.
Catsburg,	Harlem Coal Company,	do.	Louis Stalb,	do. do.
Black Diamond,	do. do.	do.	do.	do. do.
*Victory,	do. do.	do.	do.	do. do.
Buzzard Roost,	do. do.	do.	do.	do. do.
Warnes,	James Jones,	do.	James Jones,	do. do.
Abe Hays,	James Hays,	do.	Thomas S. Hutchinson,	do. do.
Stockdale,	Tomer & McKinley,	do.	Jacob Tomer,	do. do.
Clipper,	Clipper Coal Company,	do.	F. McConnally,	Allenport, Washington co.
American,	F. H. Corsen,	do.	F. H. Corsen,	McKeesport, Allegheny co.
Wood's Run,	Leadbeater & Co.,	do.	Isaac Leadbeater,	Wood's Run, Washington co.
Caledonia,	T. J. Woods & Co.,	do.	Thomas J. Woods,	do. do.
Campion Works,	Morgan & Dixon,	do.	John Dixon,	California, Washington co.
Dexter,	Crowthers, Musgrave & Co.,	do.	Jonah Crowthers,	Pike Run, Washington co.
Globe,	do. do.,	do.	do.	do. do.
Neel's Mine,	J. S. Neel,	do.	Presley Forsythe,	Monongahela City, Washington co.
Knob Colliery,	Knob Coal Company.	do.	Samuel Pearsal,	West Brownsville, Washington co.
Lemont,	John A. Wood & Sons,	Fayette,	W. M. Clarke,	Bellevernon, Fayette co.
*Connecticut,		do.		
Little Redstone,	James Rutherford,	do.	James Rutherford,	Fayette City, Fayette co.
Carondolet,	Frazer & Frye,	do.	H. B. Frye,	do. do.
Turnbull's,	Turnbull & Hall,	do.	John Hall,	do. do.
Excelsior,	Armstrong & Jacobs,	do.	Adam Jacobs,	Brownsville, Fayette co.
*White Pine,		do.		

TABLE I.—FIRST BITUMINOUS MINE DISTRICT—*Continued.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address of Company.
Bargeddie,	James Harris & Co.,	Fayette,	James Harris,	Wood's Run, Washington co.
Snow Hill,	Alps Coal Company,	do.	Joseph Underwood,	California, Washington co.
Little Alps, No. 2,	Eli Leonard,	do.	Eli Leonard,	Brownsville, Fayette co.
Little Alps, No. 1,	Alps Coal Company,	do.	Joseph Underwood,	California, Washington co.
Cedar Hill,	Morgan & Dixon,	do.	John Dixon,	do. do.
Garrow's,	Joseph Garrow,	do.	Joseph Garrow,	do. do.
Umpire,	Graham, Snowden & Co.,	do.		Brownsville, Fayette co.
*Mt. Braddock Coke Works.				
Sterling, No. 1,	J. M. Schoonmaker,	do.	Joseph Laughrey,	115 Water street, Pittsburgh.
Sterling, No. 2,	do.	do.	do.	do. do.
Sterling, No. 3,	do.	do.	do.	do. do.
Sterling, No. 4,	do.	do.	do.	do. do.
Cora Mines,	J. Newmyer & Sons,	do.	George Newmyer,	Dawson, Fayette co.
Fort Hill,	Cleveland Rolling-Mill Company,	do.	A. J. Hill,	do. do.
Spring Grove,	Cochran & Kelster,	do.	James Cochran,	do. do.
Fayette Mines,	James Cochran,	do.	do.	do. do.
Jackson Mines,	Jackson Mining Company,	do.	do.	do. do.
Tyrone Mines,	Laughlin & Co.,	do.	C. Wharton,	Broad Ford, Fayette co.
Washington Mines,	Sample, Cochran & Son,	do.	Sample Cochran,	do. do.
Henry Clay,	H. C. Frick & Co.,	do.		104 Fifth avenue, Pittsburgh.
Frick Mine, No. 1,	do. do.	do.		do. do.
Frick Mines, No. 2,	do. do.	do.		do. do.
Morgan, No. 1,	do. do.	do.		do. do.
Morgan, No. 2,	do. do.	do.		do. do.
Foundry, No. 1,	do. do.	do.		do. do.
Foundry, No. 2,	do. do.	do.		do. do.
Eagle,	do. do.	do.		do. do.
White's,	do. do.	do.		do. do.
Summit,	do. do.	do.		do. do.
Tip Top,	do. do.	do.		do. do.
Valley,	do. do.	do.		do. do.
Fountain,	do. do.	do.		do. do.
Franklin Mine,	B. F. Kelster & Co.,	do.	B. F. Kelster,	Broad Ford, Fayette co.
Clinton Mine,	James Cochran & Co.,	do.	P. G. Cochran,	Dawson, Fayette co.
Home Mines,	Joseph Stauffer,	do.	Joseph Stauffer,	Scottdale, Westmoreland co.
Furnace Mine,	Everson, Macrum & Co.,	do.	John A. Usher,	do. do.
Klffer,	W. A. Kiffer,	do.	W. A. Klffer,	do. do.
Dexter,	Joseph Stauffer,	do.	Samuel Fairchild,	do. do.
Painter Mine, No. 1,	McClure & Co.,	do.		Smithfield street, Pittsburgh.
Painter Mine, No. 2,	do.	do.		do. do.
Diamond Mine,	do.	do.	Bernard Moore,	do. do.
Pennsville Mines,	A. O. Tintsman & Co.,	do.		Pennsville, Fayette co.
Moyer's,	Cleveland Rolling-Mill Company,	do.	Frank Bradford,	Moyer's, Fayette co.
Connellsville Shaft,	Pittsb'h & Connellsville Gas Coal & Coke Co.,	do.	Charles Davidson,	Connellsville, Fayette co.
Connellsville Slope,	do. do. do.	do.	do.	do. do.
Drift,	do. do. do.	do.	do.	do. do.

.....	Connellsville Coal and Coke Company, . . .	do.	W. C. Wickham, ...	do. do.
Leisenring Shaft, ...	Connellsville Coke and Iron Company, ...	do.	J. K. Taggert, ...	do. do.
Wheeler Slope, ...	Cambria Iron Company, ...	do.	John Fulton, ...	do. do.
Morrell Slope, ...	do. do.	do.	do.	do. do.
Uniondale Mine, ...	J. M. Reid, ...	do.	J. M. Reid, ...	Dunbar, Fayette co.
Anchor Mine, ...	Morgan, Lang & Co., ...	do.	R. L Henderson, ...	do. do.
Dunbar Coke Works, ...	Colviu & Co., ...	do.	James Henderson, ...	do. do.
Deer Park, ...	Mahoning Coke Company, ...	do.	N. F. Sanford, ...	do. do.
Hill Farm, ...	Dunbar Furnace Company, ...	do.	John McLavy, ...	do. do.
Ferguson Slope, ...	do. do.	do.	do.	do. do.
Mt. Braddock, ...	A. O. Tintsman & Co., ...	do.	William E. Beall, ...	Mount Braddock, Fayette co.
Percy Mines, ...	Percy Mining Company, ...	do.	Thomas DeSaulles, . . .	Dunbar, Fayette co.
Youngstown Coke Works, . .	Youngstown Coke Company, ...	do.	William Holsing, ...	Lemont and Uniontown, Fayette co.
Lemont Mines, ...	Hogsett, Hanna & Co., ...	do.	Robert Hogsett, ...	Lemont Furnace, Fayette co.
. . . . .	Stewart Iron Company, ...	do.	J. R. Thomas, ...	Uniontown, Fayette co.
Leith Colliery, ...	Chicago and Connellsville Coke Company, .	do.	Frank Reynolds, ...	do. do.
Red Stone Coke Works, ...	J. W. Moore & Co., ...	do.	William Dome, ...	do. do.
Oliphant's Furnace, ...	Fayette Coke and Furnace Company., ...	do.	Harry Hazard, ...	Oliphant's, Fayette co.
Fairchance Mine, ...	Fairchance Iron Company, ...	do.	R. L. Martin, ...	Fairchance, Fayette co.
Enterprise, ...	Thomas Price, ...	Somerset, ...	Thomas Price, ...	Garrett, Somerset co.
Maher Mine, ...	Rody Maher, ...	do. . .	Rody Maher, ...	do. do.
Maher Mine, ...	Samuel Adams, ...	do. . . .	Samuel Adams, ...	do. do.
Philson Iron and Coal Works, .	Samuel Philson, ...	do. . . .	J. C. Davis, ...	Berlin, Somerset co.
Berlin Mines, ...	B. D. Morgan & Co., ...	do. . . .	B. D. Morgan, ...	do. do.
*Buffalo Creek, ...	Swede Iron and Coal Company, ...	do.	T. S. Hepplewhite, ...	Garrett, Somerset co.
*Hoffman Mine, ...	Hoffman & France, ...	do.	. . . . .	do. do.
Hirsch, ...	Baltimore and Cumberland Coal Company, . .	do. . . .	J. J. Hoblitzel, ...	Keystone Junction, Somerset co.
Shaw Mines, ...	Cumberland and Elk Lick Coal Company, .	do. . . .	A. Chamberlin, ...	Meyersdale, Somerset co.
Cumberland Mines, ...	Thomas Williams, ...	do. . . .	Thomas Williams, . . .	do. do.
Keystone Mines, ...	Keystone Coal Company, ...	do. . . .	T. C. Yarrington, . . .	do. do.
Frog Hill, ...	Salisbury Central Coal Company, ...	do. . . .	Thomas Eastwick, . . .	do. do.
. . . . .	Thomas Reese & Co., ...	do. . . .	Thomas Reese, ...	Elk Lick, Somerset co.
Coehran's Mine, ...	Cochran & Sons, ...	do.	. . . . .	do. do.
West Salisbury, ...	Thomas Williams, ...	do.	Thomas Williams, . . .	Meyersdale, Somerset co.
Tub Mill Run, ...	W. J. Smith & Co., ...	do. . . .	William Kerby, . . .	Elk Lick, Somerset co.
Meyersdale Mines, ...	Meyersdale Coal Company, ...	do.	John T. Hocking, ...	Meyersdale, Somerset co.
Lane Colliery, No. 2, ...	Sandy Run Coal Company, ...	Bedford, ...	John Langdon, ...	Hopewell, Bedford co.
Lane Colliery, No. 1, ...	Juniata Valley Coal Company, ...	do.	William Bathurst, . . .	do. do.
Mt. Equity, ...	Kemble Coal and Iron Company, ...	do.	William Lander, ...	Riddlesburg, Bedford co.
Deval's, ...	E. P. Jenkins, ...	do.	E. P. Jenkins, ...	Six Mile Run, Bedford co.
Cunard Shaft, ...	R. B. Wigton, ...	do.	A. J. Wigton, ...	do. do.
*Cunard Drift, ...	do.	do.	do.	do. do.
Defiance, ...	A. Covalt & Co., ...	do.	Harrison Dasher, ...	Riddlesburg, Bedford co.
Rummell Colliery, No. 1, . . .	Rody Maher, ...	do.	Martin Maher, ...	Six Mile Run, Bedford co.
Rummell Colliery, No. 2, ...	do.	do.	do.	do. do.

TABLE II.—*A statement showing characteristics, number of employés, production, &c., of the respective colleries in the First Bituminous Mine District, for five months ending May, 1881.*

NAME OF COLLIERY.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	No. of pumps.	No. of engines.	Horse power.	No. of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	No. of mules inside.	No. of mules outside.	No. of locomotives.	Total production of coal in tons.
Aliequippa,	Bituminous,	Drift,	1				117		10	127	8	3		21,822
American Coal Works,	do.	do.					50	9	3	62	3	1		2,695
Amievilie,	do.	do.	1				78	13	13	104	5	3		11,300
Amity,	do.	do.					130	16	23	169	10	3		37.046
Banner,	do.	do.					100	9	12	121	6			6,221
Berlin,	Semi-bituminous,	do.					35		4	39	2			1,858
Buffalo,	Bituminous.	do.	1	1	10	1	102	3	15	120	7			3 148
Camden,	do.	do.					147	10	34	191	11	5		11,200
Camp Hill,	do.	do.	1	1	60	2	124	10	26	160	7	2		20,512
Carondelet,	do.	do.					71		10	81	4	2		16,581
Coal Ridge,	do.	do.		1		1	102	19	13	134	6			18,779
Coal Run,	do.	do.					188	25	32	245	16	2		
Conard,	Semi-bituminous,	Shaft,	2	1	40	2	30	4	8	42	6	6		7.346
Cornell & Werling's,	Bituminous,	Drift,	2	3		4	179	15	35	229	8	1		38,565
Coulter & Huff,	do.	Slope,	2	2	50	3	100		30	130	8	1		12,200
Cumberland,	Semi-bituminous,	Drift,					8	1	2	11	1			695
Deer Park,	Bituminous,	Slope,	2	2	33	5	31		5	36	4	2		
Defiance,	Semi-bituminous,	Drift,					23	4	6	33	5			3,300
Diamond,	Bituminous,	do.					14		4	18	3			
Eagle,	do.	do.	1	1		1	20		18	38	3	5		19,620
Enterprise Coke Works,	do.	do.	1			1	13		5	18	4			
Foundry,	do.	do.					21		15	36	3	1		18 096
Fountain,	do.	do.	1	1		1	24		14	38	4	1		7,100
Frick,	do.	do.					29		24	53	5	2		26.000
Globe,	do.	do.	2	1		2	55		48	103	8	2		15,000
Greensburg,	do.	Slope,	2	2	50	3	95		35	130	7	1		7,825
Green Springs,	do.	Drift,	1	1	35	2	100	6	24	130	10			
Hampton,	do.	do.					150	50	20	220	16		1	
Hazlett, No. 1,	do.	Shaft,	4	2		5	42	1	9	52	5	1		
Hazlett, No. 2,	do.	Slope,	2	1		3	39	1	8	48	4	1		
Henry Clay,	do.	do.	4	2	75	4	29		22	51	5	2		25.960
Isabella Coke Works,	do.	do.	1	1		1	75	10	12	97	9		1	29.000
Larimer,	do.	Drift,					68	2	12	82	4			19.013
Leechburg,	do.	do.					76	10	16	102	8			35,434

Lemont,	do.	Slope,	1	1	30	2	32	2	8	42	5	1	1	10 752
Loyal Hanna,	do.	Shaft,	1	2	90	6	102	16	27	145	15	3		43 623
M. Graver,	do.	Drift,	1	3	60	3	107	9	30	146	15	6	2	32 533
Millwood,	do.	Shaft,	1	1	90	6	64	5	14	83	10		1	
Morgan,	do.	Drift,	1	1		1	40		30	70	5	2		42 850
Montour,	do.	do.	1	1		3	170	18	16	204	10	2	1	23,706
Morewood, shaft A,	do.	Shaft,	1	1		4	47		10	57	5	2		20,000
Morewood, shaft B,	do.	do.	2	1		4	80		16	96	8	4		32,500
Morrell,	do.	Slope,	1	1	121	4	155	11	32	198	20	3		77,244
M. Saxman,	do.	Drift,					37	2	9	48	6		1	23 830
Mt. Braddock,	do.	Slope,	2	1	40	4	37	2	6	45	0	3		6 336
Mt. Equity,	Semi-bituminous,	Drift,	2				56	1	18	75	20			5,247
National,	Bituminous,	do.	1	1		1	57	3	9	69	6	3		
Nixon,	do.	do.					93	3	11	107	4			11,592
Oak Ridge,	do.	do.					76		13	89	6			
Painter,	do.	do.					58	2	12	72	9			
Penn Gas Coal Company, shaft No. 1,	do.	Shaft,					180	15	30	225	14	1		
Penn Gas Coal Company, shaft No. 2,	do.	do.	2	2		4	200	22	42	264	15	3		
Penn Gas Coal Company, drift No. 4,	do.	Drift,					208	14	26	248	14	2		
Penn, Southside,	do.	Slope,					100		10	110	5			
Pennsville,	do.	Drift,	1	1	40	1	18		4	22	2	1	1	3,100
Pine Run,	do.	do.	1	1	18	1	151	12	30	193	8	2	1	16,925
Pittsburgh and Connellsville Gas Coal and Coke Co.,	do.	Shaft,	6	4		7	86		118	204	5	5		73,414
Rock Run,	do.	Drift,					65	5	11	81	3	2		5,332
Rostraver,	do.	do.					85	13	7	105	6			5,554
Salisbury,	Semi-bituminous,	do.					10	1	2	13	1			1,205
Saltsburg,	Bituminous,	do.					94	1	27	122	9			36,315
Shafton,	do.	Shaft,	1	1		2	86	4	7	97	5			17,665
Southside,	do.	Drift,					256	6	29	291	21	2		96,556
Spring Hill,	do.	do.					27	1	3	31	2			10,637
Streets Run,	do.	do.	1	1	40	1	110	14	14	138	9	4	1	14,600
Summit,	do.	do.	1	1		1	35		26	61	5	3		25 000
Tip Top,	do.	do.					19		11	30	4	1		9,600
Tub Mill Run,	Semi-bituminous,	do.					30	2	0	38	2			2 000
Umpire,	Bituminous,	do.					63	10	11	84	5	2		8,111
Union Coke Works,	do.	do.	2			1	20		5	25	5			
Union Valley,	do.	do.					14	2	3	19	1	1		1,260
Valley,	do.	do.	2	2		3	44		39	83	11	5		25 000
Waverly,	do.	do.	2	2	158	5	135	12	48	195	8	6		46,500
Westmoreland,	do.	Shaft,	1	1		4	88	3	14	105	3			24 474
Wheeler,	do.	Slope,	1	1	60	4	28	1	14	43	6	4		9,097
Wickham,	do.	do.	1	1	60	2	28	2	8	38	5	4	1	12 972
Youghiogheny,	do.	Drift,					128		24	152	10		1	18,880

TABLE II.—*A statement showing characteristics, number of employés, production, etc., of the respective collieries in the First Bituminous Mine District, for the seven months ended December, 1881.*

NAME OF COLLIERY.	Character of coal—Bituminous or Semi-Bituminous.	Slope, shaft, or drift.	No. of pumps.	No. of engines.	Horse-power.	No. of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	No. of mules inside.	No. of mules outside.	No. of locomotives.	Total production of coal in tons.
Abe Hays,	Bituminous,	Drift,					45	2	5	52	2	2		1,200
Allequippa,	do.	do.					133		10	143	6	3		20,300
Amity,	do.	do.					140	16	23	179	9	4		23,160
Banner,	do.	do.					128	22	20	170	7			22,440
Beech Cliff,	do.	do.	1	1	160	3	99	13	20	132	8	2		13,017
Buffalo,	do.	do.		2	20	1	130	6	20	156	8	1		6,000
Camden,	do.	do.					140	8	33	181	11	5		8,600
Camp Hill,	do.	do.	1	2	60	3	104	10	20	134	6	2		20,563
Carondelet,	do.	do.					74		11	85	5			18,614
Castle Shannon,	do.	do.	1				111	22	9	142	6	2	3	30,000
Cherry,	do.	do.					24	2	4	30	3	1		800
Clinton,	do.	do.	1	1	30	1	14		2	16	1	1		
Conard,	Semi-bituminous,	Shaft,	2	2	40	2	20	3	6	29	4	5		4,841
Connellsville,	Bituminous,	do.	2	2	130	4	50		3	53	4	2		8,416
Cumberland,	Semi-bituminous,	Drift,					10	2	2	14	1			670
Deer Park,	Bituminous,	Slope,	4	2	75	5	32		5	37	4	2		11,121
Defiance,	Semi-bituminous,	Drift,					16	4	3	23	3	1		854
Diamond,	Bituminous,	do.					20	3	5	28	3			10,500
Duval,	Semi-bituminous,	do.					19	1	3	23	2	1		2,634
Eagle,	Bituminous,	do.	1	1	8	1	21		21	42	3	5		27,490
Enterprise, (O'Neil,)	do.	do.					160	10	5	175	23	1		14,543
Enterprise, (Simons,)	do.	Shaft,	1	1	30	1	30	2	4	36	3	1		1,400
Excelsior,	do.	Drift,	1	1		1	34	4	6	44	2	1		1,520
Fair Haven,	do.	do.					100	30	9	139	6	2	2	18,000
Fairchance,	do.	do.	1	1		1	18	1	4	23	5	1	1	5,000
Foundry,	do.	do.	1	1		1	19		19	38	3	1		19,760
Fountain,	do.	do.	2	2		2	17		13	30	4	1		18,300
Fort Hill,	do.	do.					20				2	2		4,000
Franklin,	do.	do.	1			1	14		2	16	2	1		
Frick,	do.	do.					30		24	54	5	2		36,990
Glass-House Pit,	do.	do.					12	1	2	15	2			3,200
Globe,	do.	do.	2	4		2	61		55	116	8	2		7,500
Grant,	do.	do.					80	7	9	96	5	3		5,343
Green Springs,	do.	do.	1	1	35	2	128	6	23	157	10			

Heberman,	do.	do.																						
Henry Clay,	do.	Slope,	3	2	85		4	140	20	30	190	12												18,700
Hersch,	Semi-bituminous,	do.	1	1	20		1	24	2	25	56	5	2											3,747
Hoblitzell,	do.	do.	1	1	20		1	25	5	10	36	2	1											1,400
Jefferson,	Bituminous,	Drift,	1	2	30		3	115	7	8	38	3	1											
Lane,	Semi-bituminous,	do.						22	2	16	141	5	1											5,260
Lemont,	Bituminous,	Slope,	1	1	30		3	33	1	3	27	1	1											23,058
Midway Block,	do.	Shaft and drift,	2	2			2	60	9	8	42	6	1											8,200
Montour,	do.	Drift,	1	1			3	194	23	9	78	6	1											47,554
Morgan,	do.	do.	1	1			1	42		13	230	11	2	1										57,600
Morrell,	do.	Slope,	1	1	120		4	130	8	32	74	5	2											98,725
Moyers,	do.	Drift,	1	1	80		2	55		49	187	20	2											
Mt. Braddock,	do.	Slope,	3	2			4	27	2	9	64	8												9,400
Mt. Equity,	Semi-bituminous.	Drift,	2					47	2	15	44	3	1											8,506
Nixon,	Bituminous,	do.						87	3	17	66	17	2											8,000
Oak Ridge,	do.	do.						84		11	101	3												
Painter,	do.	do.						65		14	98	7												
Patterson,	do.	Slope,	1	1	18		1	57	2	13	80	9	7											54,885
Pennsville,	do.	Drift,	1	1	40		1	14	2	4	63	3												6,684
Phenix,	do.	do.						34	1	13	29	2												2,080
Pine Run,	do.	do.	1	1			1	160	11	2	37	2	1											1,224
Pitts. and Connellsville Gas C. and C. Co.,	do.	Slope and shaft,	6	4			7	84	1	18	189	8	2	1										24,784
Pittsburgh Union,	do.	Drift,						30	2	113	198	6	5											42,120
Rock Run,	do.	do.						90	7	5	37	2	1											800
Salisbury,	Semi-bituminous,	do.						8		13	110	4	2											4,031
Sterling,	Bituminous,	do.	1				2	122	11	2	10	1												778
Street's Run,	do.	do.	1	1	40		1	119	13	128	261	22	14											60,360
Summer Hill,	do.	do.						92	6	16	148	8	4											20,400
Summit,	do.	do.					1	35		14	112	5												7,580
Tip Top,	do.	do.	1	1			1	18		28	63	5	3											44,400
Tub Mill Run,	Semi-bituminous,	do.						37	?	12	30	4	1											17,000
Tyrone,	Bituminous,	do.						32	4	6	46	2												6,800
Umpire,	do.	do.						65	10	4	40	6												23,268
Valley,	do.	do.	4	2			4	48		10	85	5	2											6,652
Wheeler,	do.	Slope,	1	1	60		2	30	2	45	93	12	5											49,300
White's,	do.	Drift,	3	2			2	52		11	43	6	4											21,693
Wickham,	do.	Slope,	1	1	60		2	29	1	53	105	6	2											41,350
Youngstown,	do.	do.	3	2	85		5	77	4	9	39	6	4											4,087
										8	89	6	4											56,515

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries in the First Bituminous Mine District during the year 1881.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allequippa,												13,500						
Amieville,	140	6,820	170	8,160	140	6,720	170	8,160	150	7,200	200	9,600	250	12,000	250	12,000	250	12,000
Amity,							190	10,640	100	4,200	320	13,120	170	9,520	110	4,620	290	12,300
Banner,														22,000				22,300
Berlin,	100	2,510																
Camp Hill,	220	3,204	240	9,600	350	13,620	200	5,520	200	8,000	350	13,620	400	6,240	150	6,050	350	13,640
Carondelet,													150	7,800	200	7,800	175	11,200
Coal Ridge,	260	12,480	100	3,300		18,500	295	13,920	115	3,795		20,030						
Coal Run,		24,140	150	7,310	710	24,140								23,630	160	7,200	695	23,630
Conard,		7,600		4,840		7,600		5,600		2,700		9,660	200	8,000	150	6,000		8,300
Cornell & Werling's,							290	21,700	175	15,300	295	22,300						
Coulter & Hough,													260	25,480	230	9,660	260	10,920
Deer Park,	160	8,640			300	16,800	300	16,200			500	28,000						
Defiance,	30	750			22	756	13	1,040	14	336	25	1,000	23	690			21	672
Diamond,							135	4,050			95	3,800						
Eagle,	130	7,480	30	1,560	110	5,280	130	7,280	20	880	125	6,000	100	5,600	15	757	110	5,700
Enterprise Coke Works,	120	5,040			110	4,620							108	6,912			120	4,830
Foundry,	80	2,400	20	980	80	4,480	120	3,600	25	1,225	90	4,860	110	3,300	15	675	70	3,920
Fountain,							100	4,900			90	4,680	60	2,925			60	3,120
Frick,	110	4,455	20	840	150	6,300	130	5,070	20	840	200	8,400	150	6,037	15	620	220	9,240
Globe,							160	8,320	30	1,800	150	7,800	150	7,800	30	1,350	130	6,760
Greensburg,							250	24,522	270	11,340	300	12,600						
Green Springs,													320	17,980			310	17,020
Hazlett, No. 1,	185	9,065			195	7,605	185	9,065			195	8,260	195	9,555			165	6,435
Hazlett, No. 2,	115	8,280			125	8,750	120	4,320			42	4,760	150	5,820			180	5,400
Henry Clay,	80	4,480	25	1,300	70	3,185	80	4,480	20	1,040	70	3,150	80	4,480	20	1,040	80	3,640
Isabella Coke Works,	285	11,970			290	12,680							340	14,480			325	13,650
Larimer,								6,200										5,500
Leechburg	240	11,520	320	15,360	200	12,000	240	11,520	280	11,130	200	12,000	175	18,400	350	8,430	250	15,000

Lemont,	475	30,112	420	13,563	810	45,796	450	28,512	240	14,120	490	31 300	470	23,780	450	25,200	480	29,300
Loyalhanna,							490	17,640	130	6,240	650	21,125	370	13,320	100	3,600	455	22 295
M. Graver,	200	9,000			250	9,075	200	9,000			205	9,225	215	9,675			210	9 445
Millwood,	300	16,000	300	10,000	120	12 000	300	15,000	350	11,000	110	10,000	350	18,000	350	15,060	150	12.000
Morewood Shaft A,	100	4,560	40	1,800	100	5,200	120	6,240			120	6,720	140	7,840	40	2 080	120	6 720
Morewood Shaft B,	90	4,680	30	1 350	90	4,680	140	7,280			170	7.310						
Morrell,	120	8 160	25	1.300	120	4,560	130	8.800	35	1.680	150	7,020	120	8,160	30	1,560	180	7.224
M. Saxman,	127	12 700	100	6,400	220	25,520	220	22,000	108	6,912	212	22,260	227	22 700	114	7,296	216	22,683
Mount Braddock,	170	7,140	160	6,720	180	7,560	170	7,140	150	6.500	190	7 560	150	6 300	160	6,720	170	7,140
Mount Equity,	550	30, 800	310	19,712	410	32, 696												
National,							320	7,920			300	8.250						
Nixon,	410	16,070	380	15, 200	516	15,480	420	16 428	677	15,780	677	[illegible]						
Oak Ridge,	300	15 740	250	11,676	400	14 740	250	13, 344	250	11 676	400	15 280	300	15 724	250	11 676	350	15,280
Painter,	149	5, 364	259	9,175	440	17,660	109	5 232	90	5,562	382	15 280	244	9, 972	204	7 315	470	18,800
Penn Gas Coal Company's Shaft, No. 1,	190	16, 720			185	13,320	175	11,200	150	7,200	185	7,760	360	9, 600	175	11,200	175	11, 200
Penn Gas Coal Company's Shaft, No. 2,		28, 880	375	18,375	440	22, 880												
Penn Gas Coal Company's Drift, No. 4,		35 000	395	18 960	850	35, 000												
Penn. Southside,		25, 920	380	19 000	360	25, 920								34,000	970	24 460	850	34 000
Pennsville,		10, 080	210	10 080		10 080								25, 200	400	18,400	350	25, 200
Pittsburgh and Connellsville Gas Coal and Coke Co.,	410	16, 810	340	11 900	250	13, 500												
Rostraver,	420	28, 633	400	27, 392	400	27, 392	570	37, 945	420	28, 633	560	37, 324	440	28, 012	310	21 804	380	26, 150
Saltsburg,													325	11 418	260	9 867	287	11 426
Shafton,	170	7, 950	170	8, 430	200	10, 000	212	9, 925	195	9 665	240	12 000	245	11 200	185	9, 150	260	13, 000
Southside,		14, 400		3, 120		13 525		13, 500		9, 360		14, 700		13 500		10 780		15, 840
Spring Hill,				20, 240		36, 760		33, 000		16, 330		34 800				17, 310		35, 040
Street's Run,				11, 500				13, 500								13 000		
Summit,													347	12 839	400	16 000	489	20, 538
Tip Top,	140	6, 500	25	425	100	5, 900	150	7 050	20	900	110	6, 490	140	6, 580	20	1, 040	110	6 435
Umpire,	70	2, 980			80	3, 600	90	5 400	30	1, 560	95	4, 940	90	4 320			80	3, 600
Union Coke Works,													360	29 700	342	16, 758	190	18, 620
Union Valley,		4 950			85	4, 080							310	11, 160			240	9 360
Valley,	75	3, 960			80	4 100												
Waverly,	150	8, 200			170	7, 200	120	7, 200	30	1 800	140	7, 280	130	6, 760	30	1 500	140	7 280
Westmoreland,	450	16, 200	270	10, 800	400	25 600	500	19 800	200	8, 000	400	25 600	40	14 400	230	9, 200	330	21 020
Wheeler,				18, 100				20 640		20, 640				13 500		10 780		15, 840
Wickham,	122	7, 808	50	3, 200	140	7, 840	121	7, 744	70	4 480	138	7, 728	123	7, 872	70	4, 480	140	7, 840

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allequippa,	. . .	. . .	. . .	. . .	. . .	. . .	310	16,300	150	8 100	360	18,310						
Amleville,	210	10,080	220	10,560	230	12,000	. . .				. . .		100	4 800	100	4,800	120	5,760
													*60	2.880	90	4,320	90	4 320
Amity,	190	9,120	100	4,200	380	15,960	130	7,280	100	4,200	330	13,860	260	10 920	130	5.420	320	15.440
Beech Cliff,	. . .	. .	. . .	. .	. .	. .							.	16.000	. . .	10.500		17.200
Camden,	. . .	. . .	. . .	. . .	. .	.	350	14,600	.	9,000	420	23,000	375	19,250	200	11 010	420	21.000
Camp Hill,	. . .	. . .	. . .	. . .	. .	.	.	.	.	.	.	. .	375	14.700	160	7,890	420	17,800
Carondelet,	120	6,360	110	4,290	90	5,760	140	7,579	120	4,680	140	7,960	100	5 300	125	4,875	75	7,000
Cherry,	. . .	. . .	. . .	. . .	. .	. .			. .	. .	.	. .	120	5,300	80	3,900	140	6,110
Coal Ridge,	280	13,340	90	2,970	. .	18,050												
Coal Run,	. .	. .	. .	. .	. .	. .	.	24,800	465	20,100	750	24.820	*		250	12.000		
														23,800	120	5,400	750	25,500
Conard,	. . .	. . .	. . .	. . .	. . .	. . .		13,750	.	8,910		16,000						
Cornell & Werling's,	450	19,300	280	13,580	490	21,500	410	19,300	280	13,000	450	21,200						
Cumberland,	. . .	. . .	. . .	. . .	. . .	. . .	140	6,300	. . .	.	142	6,500						
Eagle.	90	5,040	10	546	80	3,840	100	5,600	. .	.	90	4,320	100	5.600	25	1 312	70	5,700
Foundry,	80	3.360	10	490	50	2,800	85	2,550	15	630	70	3,720	120	3,600	40	2,100	150	6,300
Fountain,	60	3,360	15	780	65	3,380	70	3,640	25	840	70	3 920	70	3.360	15	720	65	2,730
Frick,	100	4 620	15	630	130	5,460	90	3,780	20	820	165	6,930	100	4,200	15	630	200	8.400
Globe,	160	8,960	25	1,300	230	12,880	140	7,840	20	1,120	120	8,640	140	7,840	40	1.900	160	6,720
Grant,	. . .	. . .	. . .	. .	. . .	. . .	. . .	. . .	. . .	. .			350	19.300	160	8,900	500	19,600
Green Springs,	. . .	. . .	. .	. . .	. .	.	266	14,940	. .	. .	407	22,875	320	17,980	.		407	22,800
Hampton,	200	8.400	210	8,300	200	8 900			.		. . .		*200	8,400	190	7,600	200	8,000
Henry Clay,	85	4,760	20	1,040	60	3,120	80	4,480	15	780	65	2,957	80	4,480	20	1,040	50	4,240
Herseh,	. .	.	. . .	. .	. .	. .	.	.	.	.	.	.	150	4,800	. . .	. .	165	4,910
Isabella Coke Works,	. . .	. .	.	. .	. .	. .	330	13,860	. . .	. . .	340	14,490	*340	14,280	. .	. .	350	14,700
Larimer,	.	6,200		5,900	. . .	6,300		3,700				15,750	*	6 400				
Leechburg,	370	13.320	100	3,600	450	22.295	2°0	13,920	350	12,680	200	14 400	*200	9,600	370	17,760	270	16,200
Loyalhanna,	470	21,320	100	3,600	455	22,295	450	17,880	30	1,260	640	19,200	*65	5,200	110	3,960	325	15,925
													310	11,260				

M. Graver,	215	9,675			205	9,225	190	8,550			195	8,775	*190	8,500			180	8,100
Millwood,							350	16,000	300	12,000	344	10,000	*380	19,000	290	9,000	200	12,000
Montour,	210	11,900	125	7,350	315	14,000	320	13,300	140	7,000	375	16,000	210	13,150	140	7,300	220	14,000
Morewood Shaft, A,	160	8,960	50	2,600	150	8,400	160	8,960	40	2,080	140	7,840	*140	7,840	30	1,560	130	7,280
Morgan,	120	8,160	20	1,040	150	6,300	120	8,160	18	790	140	5,880	110	7,480	35	1,820	175	7,350
Morrell,	215	21,500	111	7,106	206	21,630	147	14,700	110	7,040	141	14,805	200	20,000	120	7,680	190	19,950
M. Saxman,	160	6,720	140	6,850	220	9,220	160	6,720	140	650	180	7,560	*160	6,720	150	6,300	180	7,560
Mount Equity,													310	8,525			240	10,395
Oak Ridge,	220	7,920	110	3,850	410	16,400	240	7,640	147	5,212	322	12,888	226	9,340	120	4,320	390	15,600
Ocean,													*465	22,320			480	23,040
Osceola,													*	10,992		2,320		6,240
Penu Gas Coal Company's Shaft, No. 2,								34,000	620	25,060	780	34,400	*	33,200	350	13,300	830	33,200
															270	11,880		
Penn Gas Coal Company's Drift, No. 4,								28,800	355	19,170	400	28,800	*	26,640	375	20,250	390	28,080
Pine Run,	450	21,000	273	16,500	500	22,000												
Pittsburgh and Connellsville Gas Coal and Coke Co.	530	35,446	250	17,800	500	33,600	275	25,840	340	23,667	325	22,736	300	21,814	250	18,080	250	18,080
Rock Run,		3,200		3,600		3,910												
Sallsbury,							63	3,100			120	7,810						
Saltsburg,	230	10,550	180	8,880	250	12,500	200	9,300	170	7,980	240	12,000	*125	6,000	50	2,250	210	10,500
													*43	1,890	140	6,720		
Shafton,	460	13,800	80	12,000	155	15,190	370	11,100		7,920		12,100	*	10,500		7,920		11,550
Southside,		3,900		17,020		49,650				15,250			*			11,550		29,070
Spring Hill,	200	10,000		9,000						10,500			*		100	5,000		
															60	3,000		
Street's Run,	390	16,910	306	11,322	428	17,976	420	17,100	204	7,548	428	17,976	320	16,110	234	7,858	469	19,698
Summit,	130	6,370			95	5,985	110	5,390	15	840	80	5,040	140	6,860	20	900	100	6,300
Tip Top,	60	3,360			70	3,360	80	4,480			70	3,920	80	3,840	20	960	70	3,660
Tub Mill Run,							60	3,110			121	7,000						
Umpire,							350	17,240	345	16,905	403	19,747						
Union Valley,							75	3,200	75	3,200	75	3,200						
Valley,	110	5,720	20	1,200	100	6,000	120	6,240	20	1,120	140	7,840	120	6,240	30	1,440	170	8,840
Waverly,	400	14,400	180	7,200	380	24,220	200	7,200	180	7,200	330	21,120	*220	7,920	210	8,400	450	28,800
Westmoreland,		16,750		9,000		16,900						5,750	*					9,660
																		2,850
Wheeler,							125	8,000	71	4,544	141	7,896	124	7,936	70	4,480	140	7,840
Wickham,	124	7,936	70	4,480	140	7,840												
Youghiogheny,	140	6,700	130	6,500	170	7,800												

*Transferred to Second district, June 1, 1881, upon re-districting the bituminous coal region into four districts.

TABLE IV.—VENTILATION OF COLLIERIES.—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.
Abe Hays,	270	9 625	250	9 625	270	10,395												
Amity,	280	11,420	125	5 290	320	12 800												
Banner,	. . .	. .						17,000		1 200		17,500	350	17 000	325	13 000	340	15,000
Camp Hill,	. . .	. .	. . .	. . . .	. . .	. . . .	350	5,620	200	3,144	400	16,088	250	16,280	375	13 660	400	15,560
Carondelet,	115	5,635	110	6,600	140	8,960												
Conard,	. . .	2,600	. . .	900		3,100		3,600	.	3,600		5,760	220	3,520	80	1,920	150	4,500
Deer Park,							300	16,200		. .	500	28,000	430	22,640	. .		480	26 880
Eagle,	70	3,360	15	720	100	4,800	90	4,410	15	750	120	5 760						
Fair Haven,		. .	. . .				200	8,400	200	7,000	300	12,600	200	7,000	100	3 500	200	7,000
Foundry,	70	3,640	10	480	100	4,800	100	4 800	20	840	90	4,320						
Fountain,	60	3,120	20	840	80	3,840	60	2,940	20	960	50	2,400						
Frick,	100	4 200	10	480	90	3.780	130	5,460	20	960	100	4,200						
Henry Clay,	90	4,500	15	720	100	4 600	90	4,320	20	840	90	4 320						
Hersch,	.				.			10,000		5,000		5,000						
Lane,	. .	. .	. . .				300	7,500	160	4.320	350	7,350	230	9,340	210	8,820	350	12,250
Lemont,	420	23,744	350	19 965	500	23,410	300	17,136	220	8,920	310	18 100	424	27,136	350	19,600	450	28,000
Midway Block,	120	4,320			. . .	. .	210	6 570	175	5 225	210	6,570	280	8 980	220	6,700	280	8 980
Montour,		13 100		5 910		13,300												
Morgan's,	140	7,840	10	560	130	6 240	110	5 280	30	960	120	5 200						
Morrell,	100	10,000	60	3,840	95	9,975	223	22,300	100	6,400	220	23,100	164	16,400	72	4 608	150	16,380
Mount Braddock,													200	5,100	100	4,800	300	19,200
Mount Equity,	. . .	.				.	240	6 600		.	430	10,642						
Nixon,							300	15 744	250	11,626	400	14,760	240	12 276	160	7 696	240	13,466
Oak Ridge,	97	4,656	120	4,300	320	12,800	145	5,220	117	4,212	330	12,400	266	9,688	162	5.832	230	11 200
Painter,									.	. .		.	350	17,150	160	7,840	340	16,660
Patterson,	. . .	11.900		6,510	.	12,100												
Pennsville,							260	10,660	230	8 050	170	9,180						
Pittsburgh and Connellsville Gas Coal and Coke Co.	230	16,838	200	14,976	290	14,976												
Summit,	100	4,500	15	724	110	5,280	100	4,800	15	735	150	7,350						

Tip-Top,																														
Tyrone,																														
Valley,																														
Wheeler,																														
White's,																														
Wickham,																														
Youngstown,																														

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minut passing out.
Allequippa,	. . .	. . .	. . .	. . .	. . .	. . .	.	23,200	. . .	11,200	. . .	23,955	. . .		. .		. .	16,800
Amity,	. . .	. . .	. . .	. . .	. . .	. . .	270	13,320	256	17,900	256	17,900	280	10,980	205	7,790	300	11,400
Banner,	400	16,000	325	13,000	450	18,000							420	17,640	350	14,000	650	26,000
Camp Hill,	260	6,670	150	5,876	400	15,560	250	7,100	175	7,000	450	17,500	300	12,800	250	11,500	400	19,000
Carondelet,	. . .	. . .	. . .	. . .	. . .	. . .	125	6,625	120	4,680	100	6,400	140	7,420	120	4,680	125	8,000
Castle Shannon,	300	12,600	100	3,500	300	12,600	. .	. . . .	. . .	. . . .		. . . .	200	8,400	100	3,500	400	16,800
Clinton,	. . .	. . .	. . .	. . .	. . .	. . .	. .	. .	. .	. .		. .	186	10,460	126	7,616	194	13,864
Conard,	200	6,000	130	3,130	200	6,000	250	10,000	230	9,660	400	6,000	300	12,000	250	10,500	500	17,500
Deer Park,	. . .	. . .	. . .	. . . .	. . .	. . . .	490	29 820	300	16,800								
Diamond,	. . .	6,200	. .	. . . .	. .	. . . .	.	16,900	. . .	6,500			. . .	11,000		8,050		13,000
Eagle,	. . .	. . . .	. . .	. . . .	. . .	. . .	300	12 075		. .	110	4,620	330	11,400	60	3,660	150	7,200
Enterprise, (Simon,)	. . .	. . . .	. . .	. . . .	. . .	. . .	300	6 000					250	5,000				
Fair Haven,	. .	. . . .	. . .	. . . .	. .	. . . .	200	8,400	100	4,200	200	8,400						
Fairchance,	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .			209	11,700	66	6,699	152	2,250
Foundry,	. .	. . . .	. .	. . . .	.	. . .	40	1 680	. .	. . . .	70	2,940	30	1,440	.	. . .	25	1,000
Fountain,	.	. . .	. . .	. . . .	.	. .	70	2,940	. .	. . .	40	1,560	120	4,800	. .		100	4,800
Franklin,	. .	. . . .	. .	. . . .	.	. .			. .	. . . .			205	11,480	205	11,480	340	19,040
Frick,	.	. . .	. . .	. . .	. .	. .	50	2,400	. .	.	85	4,560	412	20 188	120	6,720	230	8.625
Green Springs,	. .	. . . .	.	.	. .	. .			.	. . .			256	14,336	. . .	. .	310	17.320
Henry Clay,	. .	. . . .	.	.	. .	. .	90	4,320	.		50	2,400	50	2.400	. . .		40	1,600
Jefferson,	. .							9,150		7,600		10,760	. .	12,300	. .	9,700	. . .	12,400
Lane,	230	9,330	210	8,870	420	14,700	200	8,200	175	7,350	275	9,625						
Leith,							300	12,600	300	13,500	300	13,500						
Lemont,	450	28,800	460	29,440	450	28,800	420	27,136	460	11,500	445	27,430						
Midway Block,	280	8,980	220	6,700	280	8,980	180	6,480	120	4.200	180	6 480	280	8,980	220	6,700	280	8.980
Morgan's,							130	6.240	20	1,120	330	12.075	500	18,000	. . .	. . . .	330	14,340
Morrell,	230	23,000	70	4,480	220	23,100	150	15.000	50	3,200	144	15,120						
Moyer's,							35	2,520	30	1.920	40	2 560						
Mt. Braddock,	175	4,400	125	1,000	300	19,200	180	4,500	135	10,800	300	19,200						
Nixon,	. .	. . . .	. .	. . .	. .	. . .	300	15,740	250	13,344	300	15,740						

Oak Ridge,	180	8,720	136	4,760	402	16 080	263	9, 368	210	7 350	385	15 400	110	5, 280	162	5, 832	432	17,280
Painter,	420	15,540	70	3,430	370	18, 130	340	16, 660	170	7,730	180	8,820	350	17, 150	120	5, 188	340	16, 660
Patterson,		13. 100				12,850												
Pine Run,								24 720		12, 300	520	24 960						
Pittsburgh and Connellsville Gas Coal and Coke Co.							290	20,563	200	14,976	200	14,976						
Pittsburgh Union,													85	2,975			100	3, 500
Rock Run,								11 000										
Sterling,	150	7, 200	75	3, 150	200	11, 200	255	12 240	130	5 400	170	9, 520	230	12, 880	40	1, 600	145	6, 960
Street's Run,								17, 200		11, 200		17, 220			390	13, 650	472	20, 676
Summer Hill,							195	8, 190	195	8, 190	250	9, 500	210	8 820	210	8, 820	290	12 180
Summit,							110	5 280			120	5 400	95	3 800			145	6, 161
Tip Top,							70	2 940			45	2 340	40	1. 920			45	1 930
Tyrone,	190	9, 880	160	8, 960	100	8, 980	120	6, 240	100	5. 600	100	5, 000	90	4 680	80	4, 680	80	4, 630
Umpire,							233	13, 048	120	6, 720	240	13, 440		26, 705	545	28, 512	545	28, 512
Valley,							350	20 825	200	7 900	680	26, 500	420	21, 840	90	5 040	550	21, 125
Wheeler,	110	6, 100	50	3, 200	95	6 080	125	7. 000	30	1, 920	112	7, 133						
White's,							70	3 360	25	1, 400	150	6, 000	200	9 600	30	1, 680	230	11, 089
Youngstown,	610	64, 050	200	11, 200	675	64, 375	550	57, 700	400	22, 000	560	58, 900	650	28, 900	320	18, 000	650	31, 000

LIST OF ACCIDENTS *occurring in the mines of the First Bituminous Coal District of Pennsylvania, for the year ending December 31, 1881.*

DATE.	Name of Person Injured.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—county.	Date of investigation.	Nature and Cause of Accident.
Jan. 1	John Fletcher,	45	Married,		Lemont mines,	Fayette,		Leg crushed by wagons.
19	George Guy,	26	Married,		Painter's mines,	Fayette,		The coroner's jury returned a verdict of accidental death from fall of roof. The roof, in the place where he worked, was faulty, dangerous, and insufficiently timbered. There was plenty of timber ready, but he neglected to use it, presuming the roof to be sufficiently propped.
Feb. 12	—— Reece,	22	Single,		Lemont mines,	Fayette,		Arm broken.
21	Marshal Maust,	19	Married,		Lemont mines,	Fayette,		He was crossing the slope when a train of loaded wagons were being hoisted; the hoisting chain broke, and he was caught by the descending train, and killed.
23	James Brown,	6	Single,		Enterprise mines,	Allegheny,	Mar. 4	This boy, a son of one of the employees, was playing around the elevator and got caught in the machinery, and before the engine could be stopped, was injured so badly, that he died three days thereafter.
March 5	Joseph Kemp,	43	Married,		Summer Hill,	Allegheny,		Thigh and ribs broke by fall of slate.
5	Christopher Fox,	70	Married,		Birmingham,	Allegheny,		He was repairing track in the tunnel through which coal was hauled by a stationery engine, and was found by some of the workmen in a dying condition, lying in a drain, having been crushed by a fall of slate; he died while being removed to his home.
11	Timothy Manley,	34	Married,		Bower Hill,	Allegheny,		Slightly injured by fall of slate.
12	William Rosser,	28	Married,		Sterling,	Fayette,		Finger taken off.
15	Joseph Cranfield,	24	Single,		Amity,	Allegheny,		Toes mashed.
22	John Simpson,	55	Married,	7	Umpire,	Fayette,	Mar. 30	He was injured in his room, the track had got out of order and he left the face to repair it, while attending to it, a large mass of slate fell upon him, with fatal results.
April 6	Henry De Haven,	30	Married,	4	Tub Mill Run,	Somerset,	Apr. 10	He was crushed to death by the fall of a large mass of coal. It was proven, upon investigation, that he had started to work on the side of the pillar.
18	Anthony Young,	24	Single,		Beech Cliff,	Allegheny,	Apr. 20	He had been hauling water with a vicious mule, and when found, he was dead; it is supposed the mule kicked him.
21	Jacob Lynn,	33	Married,		William Stoner's,	Allegheny,		Slightly injured by fall of slate.
30	Patrick Boyle,	16	Single,		Streets Run,	Allegheny,		Arm broken.

May	6	Frederiek Frisk,	22	Single,		Upper Works,	Allegheny,	May 11	He had blasted the coal, and returned to the room before the smoke had eleared away and got on top of the coal thrown down by the blast, when slate fell and killed him; he was found by the driver when he went into the room for his wagon.
June	14	William Badger,	19	Single,					Leg broken by fall of slate.
	16	Albert Mathias,	20	Single,		Fort Pitt,	Allegheny,	June 27	He was killed by falling slate striking him on the head and breaking his neck, while engaged in knocking up some bottom coal; upon examination, the roof was found good, and the room well timbered.
	18	Peter Freney,	45	Married,					Foot crushed by fall of coal.
	21	Neal Leonard,	50	Married,	8	Summer Hill,	Allegheny,	June 24	He was killed by fall of slate; he had a bad roof to contend with; upon examination I found three very dangerous slips in the roof, which, no doubt, was the cause of the fall by which he lost his life.
	27	Myers Uplegraft,	40	Married,					Ribs broken by fall of slate.
July	7	Patriek Glimon,	25	Married,	2	Black Hill,	Washington,	July 11	He was engaged removing timber from under the slate, and was knocking out a prop, when one of the timbers fell, striking him on the head and fracturing his seull.
	13	Christ Frinkle,	35	Widower,	1	Henry Clay,	Fayette,	July 14	He was killed by fall of slate; he is supposed to have been knocking out props when the accident occurred.
	13	John L. McIntyre,	23	Married,					Ankle broken by fall of roof.
	21	William Watkins,	56	Married,		Summer Hill,	Allegheny,		He was fatally injured while riding between pit wagons coming out of the mine; he was breaking a well known rule of the colliery when he was hurt.
Aug.	4	Thomas Lamey,	14	Single,		Laurel Hill,	Allegheny,	Aug. 5	He was killed by a fall of coal in the room where he was at work with his father; upon examination I found the coal had been undermined about five feet and the boy had been left to do the under cutting while his father drilled a hole, but before he got started, about three tons of coal fell, killing the boy; there was a slip in the rib side and a smooth roof, which was the cause of the accident.
	8	William Dawson,							
	11	David Childs,		Single,					Leg broken by fall of slate.
	17	Key Hagerman,	37	Married,					Leg broken by fall of coal.
	18	Thomas Patriek Carney,	22	Single,					Injured by wagons.
	25	William Kentley,	22	Single,				Aug. 19	Seriously injured by fall of slate.
	27	Eliek Ellis,	40	Married,				Aug. 25	Slightly injured.
Sept.	9	William McKain,	20	Single,					Leg broken by fall of slate.
	21	David Inglas,		Married,					Leg broken by the breaking of wire rope.
May	16	Thomas Kelley,	50	Married,		Lane,	Bedford,	Sept. 28	Foot injured by fall of slate.
Oct.	5	Albert Heasley,	24	Single,		Camp Hill,	Allegheny,		He was killed by fall of roof while driving heading, a stone striking him on the head, killing him instantly; the accident was not reported at the time, as the inspectors term expired the day previous.
	16	William Ruffner,	48	Married,	6	Buffalo,	Washington,	Oct. 20	Leg broken by fall of slate.
									He worked alone in a room, and was found dead under a fall of coal and slate.

LIST OF ACCIDENTS IN THE FIRST BITUMINOUS COAL DISTRICT—*Continued.*

DATE.	Name of Person Injured.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—county.	Date of investigation.	Nature and Cause of Accident.
Oct. 17	Patrick Plunkett, ...	35	Single, . .	. .	Cincinnati, ...	Washington, . .	Oct. 18	He was killed by gas explosion. The accident occurred at headings No. 1 and No. 2, which are double headings. A few days previous to the explosion the headings had been stopped, and a break through made at the face. About fifteen yards from the face of No. 2 heading, a blower was struck, which made gas freely, and gave the heading drivers some trouble. But after a break through was made, the mining boss thought that all was safe, as the air would then sweep the face of both headings, and carry off the gas from the blower. On the morning of the 17th, date of accident, the boy who trapped the door connecting the two headings was sick and unable to attend to his duties, and the mining boss states that he was unable to get any one to take his place, and had charged the driver to open and close the door every time he passed through. About three, P.M., another driver on passing up the heading found the door open, a lump of coal between the rail and door preventing its closing. The driver knowing the door should be kept shut, closed it at once, and then passed up the heading to attend to his duties. In a short time after the door was closed the explosion occurred, in consequence of the gas coming in contact with open lights, in No. 2 heading. The fire passed through the breach at the face, down No 1 heading, where Plunkett was standing, at the head drilling a hole for a blast, throwing him down fracturing his skull. He was removed as soon as possible, but died in a short time thereafter.
18	John Howard, ...	31	Married, . .	3	Warnes, ...	Washington, . .	Oct. 19	Killed by a fall of slate.
	Thomas Shower, . . .		Married,	. .	. . . . .	. . . . .	. .	Leg broken by fall of slate.
	Shederick Gullman, ...	21	Single, . .	. .	. . . . .	. . . . .	. . . .	Injured about arms and body by fall of slate.
Nov. 4	Conrad Fair, ...	50	Married,	9	Tub Mill Run, ...	Somerset, ...	. . . .	He was killed by a fall of coal. He had fired a shot in the breast of coal, and on returning to the place a large mass of coal fell, striking him on the head.

	8	Gustavus Wintersteln,	21	Single,		Enterprise,	Allegheny,	Nov. 9	He was a driver, who, in attempting to pass his trip of loaded wagons, was caught between a pillar and the wagons, and crushed so seriously that he lived but a short time.
	8	G. Arthurs,	21	Single,					Ribs broken by wagons.
	11	Fred. Lucher,	38	Single,					Seriously injured by premature discharge of blast.
	11	Leonard Himker,	37	Married,					Slightly burnt by premature discharge of blast.
	14	George Ellenhomer,	40	Married,					Jaw broken.
	26	Joseph Salausge,	28	Married,	2				He was pushing a wagon into a room, and was caught by a trip of wagons coming down the heading, and fatally injured.
	27	J. Miller,	28						Slightly injured by wagons.
Dec.	1	Samuel Nelson,	23	Single,		Allequippa,	Allegheny,		Injured by fall of slate.
	1	John Nelson,	19	Single,		Allequippa,	Allegheny,		Injured by fall of slate.
Oct.	5	William Coeane,	19	Single,					Leg broken by wagons.
Dec.	5	Henry Grim,	35						Injured by fall of slate.
	7	John Monahan,	23	Married,		Knob,	Washington,	Dec. 20	He had entered a place which had not been cleared of gas to obtain a wedge, although having been cautioned against doing so, and the result was an explosion, by which he was burned fatally.
	5	Frank Field,	40	Married,		Tremont,	Fayette,		While knocking out a prop, a large mass of slate fell, knocking out another prop, which struck him a violent blow in the stomach, inflicting injuries from which he died on the 14th.
	5	James Lee,							Injured by fall of roof.
	12	Jacob Schults,	14	Single,					Injured by fall of roof.
	12	John Prosser,	36	Married,	5	Beech Cliff,	Allegheny,		He had been loading a wagon, and was found dead beneath a fall of slate.
	15	Robert Dobson,	53	Married,		Summer Hill,	Allegheny,		It is supposed that while wedging down slate that he was struck on the head by a prop. He was dead when found.
	15	William McCune,	30	Married,					Foot injured by fall of slate.
	15	David Croxten,	20	Single,					Arm broken.
	10	William Lemings,	31	Single,					Foot bruised.
	20	Robert Bartram,	25	Single,					Injured by fall of slate.
Oct.	26	Joseph Thomas,	51	Married,		Birmingham,	Allegheny,		He found gas in the air-course, and proceeded to brush it out, and, thinking the course was clear, removed the top of the safety lamp, an explosion followed, which resulted in his being burned fatally.

SECOND DISTRICT.

To the Honorable A. K. DUNKLE,

Secretary of Internal Affairs:

SIR: I have the honor of submitting my fifth annual report as Inspector of Mines for the Second Bituminous Coal District.

During the year, the territory composing this district has been changed. From the first of the year to the 15th of May it comprised the counties as they were under the arrangement of the first term. During the last session of the Legislature the number of districts was increased, and the State redistricted. A part of the First district was added to the Second district and a part of the Second placed in the Third, etc.

The Second district, as the districts are now divided, comprises the counties of Beaver, Butler, Armstrong, Indiana, Westmoreland, and that portion of Allegheny lying north of the Ohio, Monongahela, and Youghiogheny rivers.

Owing to the change in the district, the comparative production of the district cannot be arrived at.

The list of accidents reported in the district comprises the whole number reported from the first of the year. Mr. Wilcox, inspector of the First district, furnished me with those reported to him up to the time of the change in the districts.

In summing up the production of the district for the year I find, under the present arrangement, that it far exceeds what the production of the Second district was heretofore. The number of persons employed is far greater, and the mines more extensive. I also find that the number of accidents is larger. This is attributable, to a certain extent, to the extensiveness of the mines and the character of the formation.

The production of this district is used for various purposes. A part is used for the river trade, another part is supplied by rail for city and domestic use.

There is a large section of the district in which the production is mined exclusively for the manufacture of coke. This section manufactures a superior quality of coke, which is greatly in demand, and the mines are on a continual increase.

Another section mines its coal for gas purposes. The coal of this section is acknowledged for its superior quality, for that purpose, in the principal towns and cities of the country.

The whole number of accidents reported in the district during the year was seventy-two. Of this number there were reported and proved fatal, seventeen.

The percentage of fatal accidents, attributable to various causes, are as follows:

Fall of slate, ...47 1/17
Fall of coal, ...05 1/17
Mine cars, ...11 3/17
On incline planes, ...23 9/17
Miscellaneous, ...11 3/17

The percentage of non-fatal:

Fall of roof, ...10 0/55
Fall of slate, ...34 30/55
Fall of coal, ...05 25/55
Mine cars, ...18 10/55
Explosions of gas, ...14 30/55
Miscellaneous, ...16 20/55

At a meeting of the bituminous mine inspectors, held in the city of Pittsburgh in November, it was agreed that each inspector should, when issuing his annual circular for statistics to the operators, inquire whether they were in favor of a law passed by the Legislature requiring all mining bosses, not having had three years experience in that capacity, to pass an examination before a competent board, appointed for that purpose, and obtain a certificate from said board before entering on their duties as mining bosses, several of the operators having expressed a desire for a law passed to that effect in order to stimulate persons wishing to hold such positions to prepare themselves by proper study and training for its duties.

On the circular I sent for statistics is found the following: "For the proper management of mines it requires that those in charge shall be fully competent to protect the property of their employers; to conduct, as far as practicable, the mining so as to secure the health and safety of those employed therein."

"Are you in favor of the passage of a law by the Legislature requiring all those not having three years' experience as mining bosses in succession to pass an examination before a competent board of examiners, appointed for that purpose, before taking charge of a mine in the capacity of mining boss? Please answer yes or no."

Of the circulars returned, sixty-four per cent. contained answers in the affirmative, sixteen per cent. sent negative answers, and twenty per cent. returned no answer.

In England, in the mining law adopted in 1872, there is a provision for this purpose. This law is entitled "The coal mine regulation act, 1872," in which the following is found:

"SECTION 27. For the purpose of granting, in any part of the United Kingdom, to be from time to time defined by an order in writing, made by the Secretary of State, certificates of competency to managers of mines for the purpose of this act, examiners shall be appointed by a board, constituted as hereinafter mentioned. A Secretary of State may, from time to

time, appoint, remove, and re-appoint fit persons to form such board as follows, namely: Three persons, being owners of mines, to which this act applies in the United Kingdom, and three persons employed in or about a mine, to which this act applies, in the said part of the United Kingdom, not being owners, agents, or managers of a mine, and three persons practicing as mining engineers, agents, or managers of mines, or coal-viewers, in the said part of the United Kingdom, and one inspector under this act; the persons so appointed shall, during the pleasure of the Secretary of State, form the board for the purpose of the said examinations, in the said part of the United Kingdom."

In reply to the circular for annual statistics, I received reports from sixty-seven mines, the aggregate of which is as follows:

Amount of coal in tons mined,	3,675,620
Persons employed inside,	5,929
Persons employed outside,	1,245
Total number employed,	7,174
Number of mules and horses employed,	591
Average number of days worked,	231
Number of coke ovens,	2,224

Taking the figures obtained from the sixty-seven mines reported as basis, we have, for the whole district, the following estimate:

Number of mines,	120
Total number of tons mined,	6,583,200
Average output of coal for mine,	54,860
Total number of persons employed inside,	10,619
Total number of persons employed outside,	2,230
Total number of persons employed in the district,	12,849
Total number of tons mined for each fatal accident,	87,247
Total number of tons mined for each non-fatal accident,	119,694

Yours, very respectfully,

J. J. DAVIS.

BRADY'S BEND, *February 26, 1882.*

DESCRIPTION OF MINES.

Alpsville Mine.

Operated by Hackett & Rafferty. Located on the Baltimore and Ohio railroad in Allegheny county. Superintendent, J. J. Maloney. Pitt boss H. Pennman. The mine is a drift opening, driven into the hill in a northeasterly direction. There are six openings, in all, to daylight, and all entry size except one. Size of entry, eight by six feet. The rooms are twenty-one feet wide, with twelve feet allowed for ribs. Average thickness of coal, about four feet seven inches. Gauge of pit track, four feet. The coal is taken from the mine over an incline plane about seven hundred feet long. Double track, laid with T rail. At the time visited,

in October, there were one hundred and forty-five miners and eight boys employed in this mine, with thirty-one other persons employed inside and outside to do different work. Number of mules employed, ten inside and three outside. On the 26th of September an accident happened at this mine, seriously injuring Dennis McGee, caused by a fall of slate while drawing a rib back. The slate was about seven feet long and tapering from a point to about eighteen inches in width.

Osceola Mine.

The mine is operated by the Osceola Coal Company. Superintendent, F. H. Dewees. Pit boss, James Shields. The mine is a drift opening, located on the Baltimore and Ohio road. Number of entries at time of visit, six. Only one driving. Size of entry, eight by six. Number of miners, one hundred and fifty. Others persons employed inside and outside, twenty. Air measurement taken on main entry near No. 9 but . . velocity, one hundred; sectional area fifteen by five and a half feet.

Ocean Mine.

Mine operated by W. L. Scott & Co. Mine located in Sewickly township, Westmoreland county. Superintendent, J. F. Hosack. Pit boss, John Thomas. This is an extensive mine, employing over two hundred miners. It is a drift opening. Most of the workings are on the double-entry plan. The face entries are driven eight feet wide and six high. The buts seven and a half feet wide by six high. Gauge of pit track, three feet seven and a half inches, laid with T rail, and in good condition. The ventilation is produced by a furnace eight feet wide and nine feet high; from bars to crown of arch, six feet, and from bars to bottom, three feet. Length of furnace arch, twenty-six feet to bottom of air shaft. The shaft is seventy-six feet deep and eight feet in diameter, with a board stack on top twenty-five feet high, built square, being seven feet square at foot and six and a half feet square at top.

Several air measurements were taken, showing a strong current of air passing through the air-ways and entries. In a break-through between seven and eight entry, the velocity was two hundred and eighty feet per minute, and between No. 11 and No. 12, one hundred and ninety. The rooms are driven twenty-one feet wide, with a pillar of twelve feet between rooms.

An explosion of gas occurred in this mine on the 16th of December, gas having accumulated over a fall in William Shaw's room. A description of the accident is given in the list of accidents accompanying this report.

Armstrong Mine.

Mine visited on the 27th of October. Operated by C. H. Armstrong & Son. Superintendent, Robert Marshall. Pit boss, James Hallewell. A drift opening, located in Sewickly township, Westmoreland county, employing one hundred miners, including boys. At the time of visit the mine consisted of five single entries. Size of entry, seven feet wide by five and a half high. Rooms twenty-one feet wide with twelve feet ribs be-

tween. Gauge of pit roads, three feet and five inches. Ventilation produced by furnace. Intake velocity near mouth of main opening, three hundred and twenty feet per minute; sectional area, thirty-eight and a half feet. Outlet velocity on the return to furnace, four hundred feet; sectional area, thirty-four and a half feet.

Amieville Mine.

Operated by N. J. Bigley. It consists of a drift opening with face and but entries. One of the face is a double entry; the buts are all single with air-courses about one hundred and eighty yards apart across from but to but.

The mine is located in Sewickley township, Westmoreland county.

Superintendent, S. H. Grace. Mining boss, Hugh McGinn. Number of miners when visited October 28th, one hundred and eighteen, including boys.

The size of the entries is regulated by the character of the roof. In strong roof they are driven eight feet wide but where the roof is tender they are not driven so wide. The rooms are twenty-one feet wide and driven to the distance of seventy-five yards long. The ribs between rooms are twelve feet wide. Gauge of track three and a half feet. This mine has seven openings to daylight.

North Webster Mine.

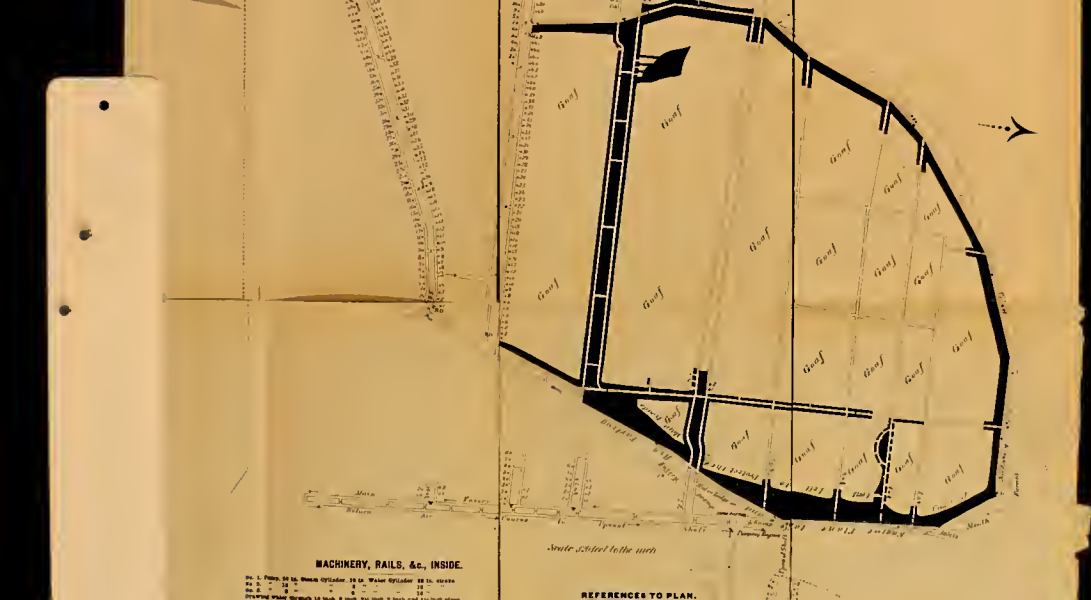
Operated by John Gilmore. Located near Webstertown in Westmoreland county. Superintendent, George Gilmore. Pit boss George Thomas. Drift opening with an incline plane six hundred feet long to the river. Coal all shipped by river. Number of miners at the time of my visit eighty-eight men and seven boys. Number of others employed ten. Number of mules inside and outside, six. Size of entry eight feet by five feet. Rooms twenty-one feet wide. Ribs twelve feet, guage of pit roads three feet, six inches.

Mine ventilated by furnace. Size of furnace, arch seven feet inside from bottom to crown, seven feet wide across bars. Above bars near five feet and below bars about two feet. Length of arch from front of furnace to shaft thirty feet. The arch is built from front of furnace to bottom of shaft with fire-brick.

Jones and Watkins Mine.

Mine located in Rostraver township, Westmoreland county. Superintendent, Thomas Watkins. Pit boss, Fred Zimmer.

Drift opening worked mostly on the single entry plan. There is a part of the mine on the double entry principle. There are four openings to this mine and one shaft. On December 7th at time of my visit there were thirty-seven miners and three boys employed in this mine. Furnace ventilation. Shaft sixteen feet deep and six feet square, with a board stack thirty-two feet high on top and seven feet square at bottom, and five feet square at top. The rooms are worked twenty-four wide with road in the middle, a rib of four feet wide left in between rooms. The velocity of air near furnace three hundred feet per minute, sectional area fifty-six feet.


Roof
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Horner & Roberts Mine.

Mine located in Forward township, Allegheny county. The coal tipple is at Elizabeth, on the Monongahela river, which is connected with the mine by a narrow gauge railroad. The gauge of this road is the same as the roads in the pits—three feet eight inches. On the outside road a locomotive does the hauling from near the pit mouth to the river.

The coal is hauled out of the mine by a stationary engine, with the tail-rope system, and the grade from the inside to the outside stations is easily overcome. The main rope is one inch wire rope, and the tail rope is five eighths inch.

At the time of my visit to this mine, there were ten mules employed inside, taking the coal from the face of the workings to the rope station.

Number of miners employed, two hundred and four men and three boys, and there were over thirty others employed inside and outside, at different labor. The entries in this mine are driven eight feet wide and five and a half high; rooms twenty-four feet wide, with road in the middle; ribs three feet wide. The present workings of this mine are on the double-entry plan, as can be seen by M. Creevey's map, accompanying this report. The ventilation is produced by a furnace.

Milesville Mine.

Operated by the Milesville Coal Company. Superintendent, Robert Jenkins. Pit boss, Alex. Thompson. Mine located in Forward township, Allegheny county, on the Monongahela river. It consists of a drift opening, with a short inclined plane, over which the coal is conveyed to the river. The shipments are all by river. The inside workings of the mine are partly on the single-entry plan, with *but* entries one hundred and fifty yards apart, with rooms on both sides. The entries are seven and a half feet wide and five and a half feet high; rooms are twenty-four feet wide, with nine feet of a rib left between rooms. There are four openings from the mine to daylight, exclusive of the furnace shaft. The ventilation is produced by a furnace, and a part of the mine being on the double-entry system, adds to its power.

Rostraver Mine.

Located in Rostraver township, Westmoreland county, and operated by D. W. Clark. Superintendent, Abram Rupert. Pit boss, D. R. Jones. Mine operated by drift opening, and coal shipped by river. An inclined plane from near mouth of pit to river two hundred and eighteen yards long.

At the time of my visit to this mine the most of the miners were working in No. 1 entry. The bearing of this entry is S. 66° E. There are two openings to the mine, and the mode of working at present is the double-entry, which are driven with eighteen or twenty feet of coal for pillar between them. Size of entry, seven and a half by six feet. The rooms are twenty-seven feet wide, with six feet of a rib between. The ventilation of the mine is produced by a furnace.

Iron City Mine.

Mine operated by Phillips & Mitenzway. Superintendent and pit boss, Solomon Stroup. Mine situated on the Monongahela river, in Westmoreland county. A drift opening with an inclined plane four hundred feet long to tipple at river; four openings to mine; three drifts and one shaft. Number of miners at time of visit, sixty men and seven boys. The workings were in three entries. Size of entry, seven by six feet; rooms, twenty-seven feet, with roads in the middle; ribs, eight and a half feet; not drawn; gauge of road, three and a half feet. Ventilation by furnace, seven feet wide. Length of arch, thirty feet, and seven and a half feet high—five feet above bars, and two and a half below. The furnace is built at bottom of a shaft sixty-three feet deep and six feet in diameter, with a square stack sixteen feet high on top. Average thickness of coal said to be five feet. Velocity of air at inlet on main hauling road, two hundred and eighty feet; sectional area, seven feet four inches by five feet seven inches.

SOUTHSIDE, No. 2—But entry, velocity, one hundred and twenty-five feet; section area, thirty-seven feet.

SOUTHSIDE, No 3—But entry, velocity, sixty feet; section area, thirty-five feet. Outlet velocity near furnace, two hundred and ten feet; section area, forty-two feet.

Hampton Mines.

Operated by the Hampton Coal Company. Superintendent, Major Lawton, and pit boss, David Owens. Mine located in Sterrett township, Allegheny county. Drift opening, with an incline plane eight hundred and seventy-three feet long. It is a double track plane from the top down to a little below the half, and three rail from there to bottom. From the top of the plane there is a tunnel, about three hundred yards long, through the first hill. The present workings are in the second hill. The coal hauled by mules from the workings to the top of the plane. The main opening of the mine enters the hill in a north-easterly direction. At time visited, number of miners, one hundred and seventy men and twenty boys; other persons employed, inside and outside, thirty-five; number of mules, seventeen. Gauge of pit roads, three feet eight inches.

This mine is worked on the double-heading system. Entries eight feet wide and six feet high. The roads in good condition. Mine drained by natural means. Ventilation by furnace. The furnace arch is eight feet wide and eight feet high and fifty feet long; length of grate-bars, six feet; fire bed, forty-eight feet. The furnace is a good one, and able to set in motion a large quantity of air. I measured the air at the inlet and outlet and in several parts of the workings.

The New York and Cleveland Gas Coal Company's Mines.

These mines, at present, are in this district. I have been able before the close of this report to visit only a part of these mines. They are all located in Allegheny county. The coal of Plum Creek and Sandy Creek

is shipped from the mines by branch roads of the Allegheny Valley Railroad. That of the Duquesne mine and the two Turtle Creek or Oak Hill mines are connected by branches from the Pennsylvania railroad.

The Duquesne mine is a drift opening, employing, at the time visited, one hundred and thirty-five miners, with twenty-five other persons inside and outside. There are several openings to this mine, and it is dependent upon these openings for its ventilation. The cover of the mine in some parts is light, and many of the entries driven to the crop. The velocity of the air near the mouth of No. 3 entry was, at time of visit, two hundred and twenty feet per minute, sectional area, twenyt-five feet; at mouth of No. 2 entry, velocity, one hundred and ten feet per minute, sectional area, twenty feet.

On the 4th of August, John Green, the pit boss of this mine, was kicked by a stubborn mule, while trying to get him to pull his trip, after stopping on a piece of an outside road crossing from one pit mouth to the other, over a trestle. He was very severely hurt, causing his death on the following day.

This mine is under the superintendency of J. W. Doak; present mining boss, Joseph Corbett.

The Oak Hill mines, Nos. 3 and 4, are located at Turtle Creek. Both drift openings. Superintendent, John McIntosh; mining boss, William P. Owens.

There was employed in No. 3 mine at the time of my visit sixty-five miners and five other persons inside and six outside.

The mine ventilated by a furnace. The roads are kept in good condition. This mine will soon be exhausted.

No. 4 mine employs over two hundred persons. The coal is taken over an incline plain about one thousand one hundred feet long, laid with T rail, double track. The rope is a steel three fourths inch wire rope. The mine is worked on the single entry system. The entries are driven seven and a half feet wide by six feet high. Distance between entries, one hundred and sixty yards. Rooms twenty-one feet wide. Ribs thirteen feet, guage of road three feet eight inches. The old workings of this mine give off large quantities of carbonic acid gas. I advised to change the intake and to bring the air into the mine through the Johnson opening, and to conduct it around the working places before it would be mixed with the foul of the old workings. The pit boss had the necessary changes made, and I was informed that it improved the purity of the air very much. To produce the ventilation there is a good furnace built in this mine which is capable of moving a large quantity of air, and I think with the care that is taken by the pit boss that the mine can be kept in fair condition.

Keister Mine.

Operated by the Union Coal and Coke Company, (Limited,) superintendent, George G. Stage; pit boss, James Spears. Mine located in Cherry township, Butler county, and connected with the Shenango and Allegheny

railroad by a branch road. This is a drift opening worked on the single entry system. Entries driven seven feet wide by five and a half feet high. The rooms are six yards wide with pillars of five yards between. At the time visited there were fifty-five miners employed with fourteen others inside and outside. The mine is ventilated by furnace. I was informed that it was the intention of the company to open up this section of the coal fields, and that in the near future there would be other mines here in operation. There are several houses built in the neighborhood of the mines. During the year they have built a number of coke ovens, and they have erected buildings and put in machinery for coal washer in connection with coke ovens. The seam of coal is above water level and easily developed.

Acbarr Mine.

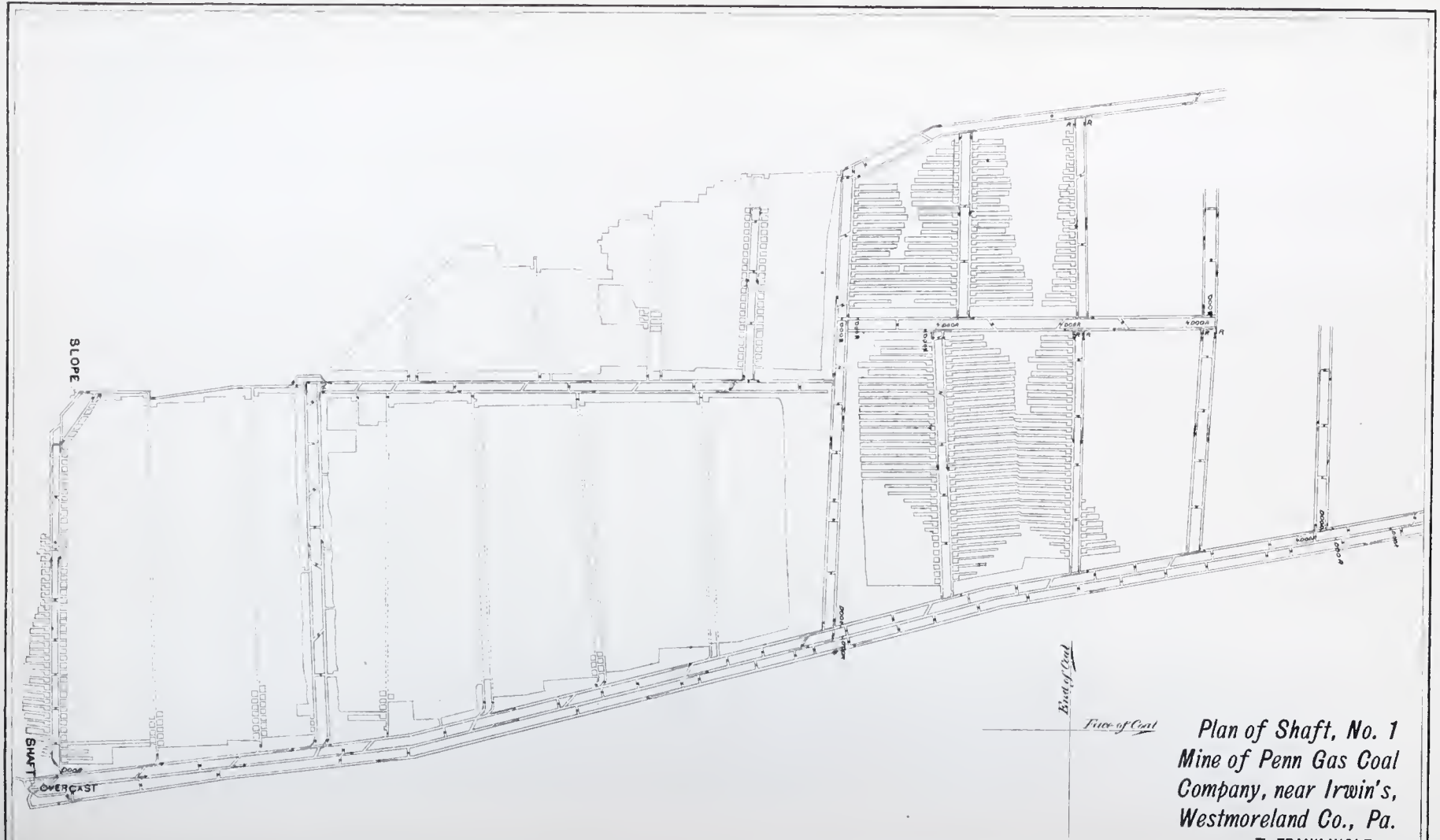
Operated by J. L. Turner. Superintendent, J. D. Morse; pit boss, Jacob Liston. Mine located in Washington township, Butler county. A slope opening. Coal shipped by the Shenango and Allegheny railroad.

Entries are driven eight feet wide and six feet high. Rooms from twenty-one to twenty-four feet wide, with pillars from eighteen to twenty-one feet. Gauge of mine roads, thirty-seven inches. Main roads laid with T rail. Number of miners employed in September, fifty four men and six boys. Mine ventilated by furnace. Velocity of air current at inlet, one hundred and fifty. Sectional area, forty-two feet. Number of cubic feet passing, six thousand three hundred. I measured the air in several parts of the mine, and found the mine, as regards ventilation, in a fair condition. It is the intention to open another mine and increase the output.

Penn Gas Coal Company Mines.

This company is operating very extensive mines in this district, under the general management of W. Wilson. These mines are situated in Westmoreland county. Their Nos. 1 and 2 shafts are very extensive mines. John Bolan is in charge of the underground workings of both of these shafts.

The machinery used for hoisting, pumping, and ventilating, are among the best manufactured for these purposes. Shaft No. 1 is one hundred feet deep. The workings are ventilated by a Snyder fan twelve feet in diameter. Number of miners employed in this shaft at the time visited in November, was one hundred and seventy-five men and six boys. Total number employed inside and outside, two hundred and fifteen persons. The mine roads are all kept in good condition, and brick stoppings are built in the mouths of the old worked out places, and the air taken direct to the head of the workings. A map of this mine has been sent to me by T. Frank Wolf, assistant mining engineer of the company, which accompanies this report. Shaft No. 2 is two hundred and four feet deep. This shaft is ventilated by the same size and make fan as shaft No. 1, and the entries are driven on the same system—both of these mines are worked on the double-heading plan, and in some instances, where it is required, there are



Plan of Shaft, No. 1
Mine of Penn Gas Coal
Company, near Irwin's,
Westmoreland Co., Pa.

T. FRANK WOLF,
ASS T MINING ENG.

three parallel entries, and a strong current of air is kept constantly passing through. The working place of these mines are examined every morning before the men are allowed to enter, to see that they are clear of standing gas. There are two fire bosses in this shaft, and each has his own division to examine each morning. At the time I visited there were two hundred and twenty-five miners, including boys, employed in this shaft. Total number employed, two hundred and seventy-five.

Besides the above-named mines, at the time of my visits, this company operated two drift mines, which were both extensive.

The Coal Run Mine.

Employing two hundred and five miners, including boys. Total number employed inside and outside, two hundred and forty-five persons. Mining boss, Samuel Cleland. This mine is ventilated by a furnace. There are several openings to this mine driven to the outcrop of the coal. There were, at the time examined, thirteen entries working. Size of entry, seven and one half feet wide by five and one half feet high. Distance between but entries, four hundred and fifty feet. Width of rooms, twenty-one feet. Ribs, twelve feet.

Mine No. 4.

This is also a drift-opening. Located at Sewickly, Westmoreland county, near the junction of Youghiogheny railroad and the Baltimore and Ohio railroad. Mining boss, Samuel Stone. The main-entries in this mine are driven eight feet wide, and the cross-entries seven and one half. The gauge of the pit roads is forty and one half inches, laid with sixteen-pound T rail. The roads are kept in good condition. Distance between entries, six hundred feet. On one side of the workings the entries are to the rise of the coal, and on the other to the dip. The mine is ventilated by a furnace, which is placed between Nos. 5 and 6 entries on the dip side. The furnace-arch is twenty-two feet long, seven and one half feet wide, and eleven feet high. Grate-bars are eight feet long, fire-bed containing sixty square feet. Air measurements, taken near furnace, showed forty thousand eight hundred and seventy-five cubic feet of air passing. Number of persons employed at this mine at time visited, two hundred and forty. Number of mules employed inside, fourteen.

Westmoreland Coal Company.

This company is also one of the most extensive operators in this district. All its mines are in Westmoreland county, with the exeeption of the Spring Hill mine, which is in Allegheny county. Their mines consist of drifts, slopes, and shaft mines, all under the superintendency of F. Z. Shellenberger.

The SOUTH SIDE MINE is located near Irwin's station, on Pennsylvania railroad. Drift-opening. Mining boss, Samuel Wood. This mine employs over three hundred persons. The inside workings are very extensive. It

is worked on the double-heading system. The entries are eight feet wide, and six feet high. Rooms, twenty-one feet. Ribs, twelve and one half feet. The pit roads are dry, and in good condition. The gauge of track is forty inches. All main roads laid with T rail. There is a powerful furnace used for the ventilation of this mine, with a large roomy return air-course leading to it. The furnace-arch is twenty-two feet long, and fourteen feet wide. Grate bars, eight feet eight inches long. The furnace is placed near the bottom of a shaft one hundred and thirty-six feet deep, the size of which is twelve feet by six feet. There are five drift openings to this mine and two shafts. One shaft sunk to pump the water out of the mine, at the bottom of which there is a boiler thirty-six inches in diameter, and twenty-four feet four inches long. I was told that the depth of this shaft is one hundred and ninety-eight feet, and that the size is six feet by eight feet.

LARIMER MINES of this company were visited November 12. These are drift-openings. Mining boss, Arthur Fowler. There were employed in these mines at that time over two hundred persons. Larimer, No. 2, will soon be worked out. A new incline plane had been built at these mines, and the inside workings at the head of this plane were to be connected with Larimer, No. 3. The gauge of the road in No. 2 was thirty-eight inches; and in No. 3, forty inches. Main roads all laid with T rail. There are important improvements contemplated in this mine as soon as the new parts of the workings are far enough advanced.

SHAFTON MINE.—This is a shaft opening, located near the Pennsylvania railroad in North Huntingdon township, Westmoreland county, east of Irwin. Mining boss, William S. Ramsay. This shaft is one hundred and fifty-four feet deep. Number of persons inside and outside at the time visited, seventy-five. Most of the mining at present is done in rib and pillar-work, and the workings will soon be exhausted. There is a well-fitted traveling-way at this mine for the ingress and egress of the men.

WESTMORELAND SHAFT.—Of the same company. This shaft is one hundred and ninety-one feet deep. Is located east of the Shafton mine, in the same township, near the Pennsylvania railroad. Mining boss, Charles Walter.

There are over two hundred persons employed at this mine, and it is intended to make the workings still more extensive. There is a good traveling-way completed through the slope, five hundred feet long; size, ten feet wide and six feet high. On one side of this slope there is a self-acting incline plane, used only to take in rails and timbers for the mine. The two tracks used by the plane are one above the other; the gauge of the under track is thirty inches, and that of the upper, forty inches. On the under track is a balance weight of solid iron, five feet and ten inches long, two feet and two inches wide, and four inches thick, on wheels, which travel under the upper track, and draws the empty car on the upper from the bottom of the plane to the top. The car, when loaded, over balances the

weight and draws it up to the top, but as soon as the car is empty the weight draws it back.

All the machinery at this mine is strong and substantial. In the hoisting shaft there are safety catches on both cages. A steel wire rope, one and a quarter inch, with hemp center, cover over each carriage, and the inside workings of the mine well planned, with roomy air passages, and a Snyder fan for ventilation.

There are several very extensive mines in this district that I have failed to describe in this report. Many that I have visited and have notes taken, and there are other mines that I have failed to visit before the close of the year.

There are a number of mines on the South-West Pennsylvania railroad. The product of these mines is manufactured into coke, in ovens near the mines. Through the kindness of Mr. Miller, the engineer of the Standard mines, I have been furnished with a full description of the new machinery built at that mine, which is of credit to the owners, A. A. Hutchinson & Bro., and to the engineer and those in charge, under whose supervision they were constructed. The mine is extensive, and the quality of the coal is among the best in that section for coke, and it is unsurpassed in any part of the Connellsville coke district for manufacturing purposes. The mine consists of both slope and shaft openings, and the underground workings are connected, and ventilated by a "Champion ventilator," which is placed at the top of the slope.

This mine was at first confined to the slope opening, but during the year 1881, in order to increase the output of coal, the shaft was sunk, and a large number of coke ovens built, and the machinery and buildings described by Mr. Miller in the following report, were put up.

Standard Mines of A. A. Hutchinson & Bro., at Mount Pleasant, Westmoreland County.

Extensive improvements and enlargement of these works were made during the past year. Shaft No. 1 was sunk to the coal, the depth being one hundred and ninety feet from surface to the bottom of the coal, size twelve feet by fifteen feet six inches. The vein of coal found at this point is nine feet thick, free almost from any slate, except the small parting slate. The sinking of the shaft was commenced March 17, 1881, and coal reached June 16, 1881. It is securely timbered from the bottom to the top. The timbers upon which the whole frame of the timbering starts are fifteen inches by fifteen inches for a distance of thirty feet up the shaft; then from there the bunting timbers are eight inches by ten inches, set edgewise, and in sets six feet apart from center to center. The division timbers are eight inches by ten inches and dovetailed into the side timbers. The whole shaft is then lined with one and a half inch oak plank. The guides are six inches by eight inches, southern pitchpine, notched and bolted to each of the bunting timbers. The approach to the shaft in the mine is well timbered with twelve inch by fifteen inch timbers, in sets four feet apart from center to center, and the entries well ar-

ranged to insure the rapid movement of wagons. A speaking tube is placed in the shaft from the floor of the derrick to the bottom of the shaft.

Derrick and coal-bins, constructed of white oak timber of the best quality. These structures are the best in the Connellsville coke regions, and were designed with much care and study to insure their permanency and safety.

The derrick frame is twenty feet wide and thirty feet long, resting on heavy stone foundations, and is seventy-three feet high from the foundations to the cross-timbers for sheave-wheels. The main corner-posts are framed similar to a bridge chord, of six inch by twelve inch timbers, in sets of two, leaving a space three inches between each pair of timbers, and carried up to the top in this manner. The main braces run from the foundations of the engine-house to the cap under the sheave-wheels, and the braces are parallel to the line of the ropes to the drums of hoisting-engines. The whole of this structure is well braced and bolted together by rods from one side of the frame to the other.

Coal-bin is built on two massive stone piers, with a central support of timber between the piers. The size of the bin is twenty-six feet wide, thirty-two feet long, and total height thirty-four feet. Built of heavy white oak timber, securely braced and well framed, and held by iron rods from one side to the other. The portion of bin upon which the whole load rests when full, or, in other words, the floors of the bin, are constructed of channel beam iron bars, from one side to the other. These channel bars are placed in sets of two, with a piece of oak timber between them, and bolted together. Then these sets are placed on the floor, two feet apart, from center to center, forming a regular floor system of iron. On the flanges of the iron beams are placed improved slides for leaving the coal out of the bin into the larries, and to discharge it in the *center* of the larry. These slides are worked with but one lever, and open, by this lever, two slides. This ingenious contrivance was designed by the engineer in charge of these works. The top of the bin is level with the floor of hoisting-derrick. Here tracks from cages lead to the tipples for dumping the coal from the wagons to the bin. The tracks are so arranged that the empty wagons are taken to the back of the cages, so the empty wagon strikes the loaded and helps to push it off the cage. A speaking-tube from the floor of the derrick is connected to the engineer's stand in the engine-house. On the floor of the derrick and coal-bin, at the front of the cages, there is a double-track platform scale to weigh the wagons as they come off the cages.

The whole of the floor of the derrick and coal-bin is roofed and sided, affording *ample protection against the elements.*

ENGINE-HOUSE.—The engine-house is a brick building thirty-two by thirty-five, and fifteen feet high; tin roof; and contains a pair of Hartupee hoisting-engines, geared three to one; steam cylinders fourteen inches by twenty-four inches; conical drums; and fitted with an effective brake. There is designed a steam-brake for this engine, which will be placed on it in a short time.

The boiler-house is of brick, and joins, and is a part of the engine-house, the engine-house and boiler-house forming a letter L. In this house there are two separate batteries of cylinder boilers, thirty-six inches in diameter and thirty feet long, arranged so that steam can be used from one or both batteries if desired. These boilers are fed by a No. 4 Blake pump. At the rear of the boilers at the outside of the building a neat and substantial brick smoke stack is built, sixty-five feet high. The coal supply for the boilers is brought to the boiler-house by the charging larries, a track being built for that purpose from the main track at the coal bin.

From the coal bin there is a standard guage track built nine hundred and seventy-five feet long to block "A" and "B," of coke ovens.

A block of four hundred ovens was built during the time the other work was under construction. These ovens are built in the most substantial manner. A novel track is placed on these ovens. This track consists of nine-inch deck beams, bolted together with fish plates at their joints. I beam iron four inches high is used for bridles. These bridles are placed six feet apart to the I beam bridles at the ends. A piece of (L) angle iron is riveted and holes punched on the other leg of the angle iron and then bolted to nine inch deck beams. The whole track thus put together rests on piers built between each oven. On these piers a cast iron shoe is set to receive the deck beam. The cast iron shoe has two lugs cast on the bottom, and holes are drilled in the top stone to let in these lugs; by these means the cast-iron shoe is held in place. A locomotive weighing five tons is used here for charging the oven. This manner has proved an entire success both in points of economy and speed. The whole of this large and extensive plant was designed and erected by George L. Miller, C. E., mining engineer.

Description of Accidents Proving Fatal.

Accident No. 5.—Harry Neff, aged eighteen, was working with his uncle at Horner & Roberts' mine, near Elizabeth, Allegheny county, February 18, was killed by a fall of slate in the face of the room.

Accident No. 13.—George Dean, age thirty-eight, single, was found dead March 8, in a drain in the Plum Creek mine, Allegheny county. Dean was subject to fits, and he is supposed to have been taken by one when on his way out of the mine, when he fell into the drain. He was dead when found.

Accident No. 14.—William L. Jacobs, a young man twenty-three years of age, was killed by wagons on March 14. This accident occurred at the Rostraver mine, Westmoreland county, by wagons running down the incline plane, caused by the rope being cut.

Accident No. 20.—William Dull, married, aged twenty-three, was fatally injured in the Hampton mines, Allegheny county. He was a driver and was going out with a trip, and in attempting to get on the wagons was caught between the wagon and the pillar. When examined by the doctor it was found that his spinal column was dislocated. The accident occurred on April 5, and he died on the 7th.

ACCIDENT No. 21.—John Smith, aged twenty-five, single, was killed, on the 5th of May, by wagons at the Turtle Creek, No. 4, Allegheny county.

ACCIDENT No. 22.—Robert Alexander, aged sixteen, single, was killed, on the 5th of May, by wagons at Turtle Creek, No. 4, Allegheny county.

ACCIDENT No. 23.—Joseph T. Lawton, aged twenty-one, was killed by wagons in the Hampton mine, Allegheny county, May 5. He was a driver, and was found dead between the pillar and wagons, but little is known how he came to his death. It was supposed by those who found him that he had missed his step in getting off the wagons and was caught in the manner found.

ACCIDENT No. 25.—William Crumbie, twenty-five years of age and single, was, May 19, found dead by his father under the loaded wagons in the Rea mine. He was a driver and had a balky mule and had great difficulty in managing it. Either the mule kicked him to death or he fell under the moving wagons.

ACCIDENT No. 28.—Fred Walters, a miner at the M. Graver mine, was at work in his room on May 26, and was caught by a fall of slate and injured very seriously internally. His principal injury being rupture of the bladder, which resulted in death on the 28th of May.

ACCIDENT No. 31.—Osgar Swanson, aged sixteen, was killed by a fall of slate in Penn Gas Shaft, No. 2, on the 9th of June.

ACCIDENT No. 32.—David Davis, an old man over sixty years, who had been a miner most of his life, and highly spoken of by his fellow miners and those that knew him, was caught through the treacherous nature of the slate while working in his room on the 21st of June, in the Oak Hill, No. 3, mine. He was turning a room which was not quite widened out when he was killed by a fall of slate.

ACCIDENT No. 40.—John Green, a pit boss at the Duquesne mine, was kicked by a mule on the 4th of August, and died on the fifth. He was a man thirty-six years of age and left a family of a wife and four children, the oldest of whom was only eight years old.

ACCIDENT No. 42.—Joseph Helley, aged thirty-five, married, was, September 2, fatally injured by a fall of slate while working with David Musick, drawing rib No. 26, in No. 13 entry, in Shafton mine. Musick was working on the road side and Helley on the gob side. Helley had been sounding the slate and intended, as his partner informed me, to put a prop under it, but delayed it too long.

The following is a copy of the verdict of the jury and the testimony of witnesses taken before J. P. Wilson, Esq., acting coroner, as given me:

COMMONWEALTH OF PENNSYLVANIA, } *ss:*
County of Westmoreland. }

An inquisition indented and taken at the office of J. P. Wilson, Esq., in the borough of Penn, in the county of Westmoreland, the 5th day of September, A. D. 1881, before me J. P. Wilson, justice of the peace of the county aforesaid, upon the view of the body of Joseph Helley, then and

there lying dead, (at his former residence in the borough of Penn,) and upon the oaths of D. J. Miller, J. R. Wilson, William Holmes, W. H. Miller, J. Crowell, and Lemuel Offutt, good and lawful men of the county aforesaid, who being duly sworn to inquire, on the part of the Commonwealth, when, where, and after what manner the said Joseph Helley came to his death, do say, upon their oaths, that the said Joseph Helley, on the 2d day of September, A. D. 1881, at his home in Penn borough, died of an injury received in the old Shafton mines, owned and operated by the Westmoreland Coal Company, about six o'clock, A. M., September 2, 1881, and they further find no evidence of carelessness on the part of anybody, but a positive accident.

J. P. Wilson, [s. s.]
Justice of the Peace.
D. J. Miller, [s. s.]
J. R. Wilson, [s. s.]
William Holmes, [s. s.]
W. H. Miller, [s. s.]
Isaac Crowell, [s. s.]
Lemuel Offutt, [s. s.]
Jurors.

David Musick, *sworn:*

Was in the room at the time Joseph Helley was injured by the fall of slate. There was a slip in the slate. Thinks that slip caused the slate to fall. The room was well posted as well as they are usually found. Thinks no carelessness was apparent on the part of Helley. The slate covered him all over except one foot. There was plenty of extra timber for immediate use when needed. It is customary for men to knock the coal and post up the slate immediately.

John Colligan, *sworn:*

Was working in same entry that Helley worked in. Heard some one call that a man was under slate. Went up and found two men in the room and two posts. I helped to take the slate off of Helley. Thought he (Colligan) would have had posts closer the coal than they were. Thought the slate would have weighed about thirty hundred pounds. The posts were about four and a half to five feet back from the face of the coal before it was knocked by Helley. Thinks the posts should have been closer which would have prevented the slate falling.

Wentzel Bear, *sworn:*

Was working in same entry. Was called in when Musick was trying to lift the slate off of Helley. He got a part off of gob about two yards away. With assistance of others got the slate off. Slate weighed over a ton. The posting was plenty. There was a slip in the slate. He thinks the slip might have been seen by the man working under it. Thinks it was his fault that a post was not set. He should not have been killed had he attended to it. There was plenty of extra timber near by.

DR. F. L. HUMMER:

Was called to see a man about half past six. Found Joseph Helley in pit wagon almost without pulse. Also fracture of left leg and right thigh; also the breast was injured and otherwise injured internally. Saw him put in mine and sent home. Sent student along to attend to his wants. I saw him on the stone and thought he could not live more than two or three hours.

RICHARD PRITCHARD, sworn:

Went into Joseph Helley's room in the old Shafton mines, about six o'clock, a. m., September 2, 1911, and found Joseph Helley lying under a piece of slate. Was called in by the man who worked with Joseph Helley. Suppose the slate weighed about three or four tons. The room was well posted. Saw a slip in the slate near the posts. Helped to take the slate off of Helley. Saw no evidence of neglect on the part of anybody. He was entirely covered with slate, except his one foot.

C. L. MCELWAIN, sworn:

Saw him (Joseph Helley) in the pit in the wagon, and helped to bring him out. He was injured. Do not know how he was hurt.

FRANK LINDSAY, sworn:

Was in his room after the accident occurred in the pit known as the old Shafton mines. Saw the slate that fell on deceased—suppose it would weigh about three tons. The room seemed to be moderately well posted. It would have been proper to have had another post at the lower corner of the pit where the slate fell from. There was plenty of timber in the room for use when needed.

ALEX ATKINSON, sworn:

Saw him (the deceased) in the room after the accident, which occurred in the old Shafton mines, owned and operated by the Westmoreland Coal Company. The slate would weigh fully three tons. Thought the room in as good shape and as well posted as they are generally found. It is customary to draw nibs and post up slate as the coal is mined; and the slate gave away near the coal first. There was a slip running through the slate at the face of the coal, which accounts for its giving away. Thought there was no careless case on the part of any one.

ADJUSTER NO. 13.—Frank Ulmer was fatally injured, by fall of slate, on the 2d of September, in Oak Hill No. 2 mine. He was working in room No. 24, in White's entry-room, newly turned; and, according to the opinion of the miners in the room at the time of my investigation, and who were working near him at the time of the accident, it was the result of carelessness in not using proper caution to secure the slate. Doctor Hummer attended him. He died in about an hour after the accident. He had been in the employ of the company for six or seven years. He was a man fifty-

five years of age, and had a family in Austria, consisting of a wife and four children.

Accident No. 48.—John King, a young man, twenty years of age, was fatally injured, on the 27th of September, by a fall of slate at the Shafton mine, Westmoreland county. King was very severely injured about his head and body. His head was fractured and body badly bruised, with one of his thighs broken. He and his brother David were working together at the time of the accident. When George Spor came into the room he found John under the slate. It had fallen in one piece, and would weigh about ten hundred weight. The accident occurred, as stated above, on the 27th, and he died on the 29th.

Accident No. 55.—Bernhart Rholt, November 2, was fatally injured by a fall of slate in the Coal Run mine. This accident happened in room No. 11, in upper No. 13 entry, at about nine o'clock, A. M., and he died about two, P. M., of the same day. He had been in the employ of this company about ten years, and was always considered a careful man. The slate that fell on him measured six feet nine inches in length, and three feet eight inches wide, and it was thought by the parties that saw it, would weigh about fifteen hundred weight. He had two posts in his room, but had none up at time of accident. The room had just gone through a clay vein, and was only eleven feet wide.

Accident No. 58.—Archibald McFall, November 26, working in the Baker mine, Beaver county, was fatally injured by a fall of coal in his room in Delaney's entry. He was bearing-in at the time of the accident, in the side of his room, next to that of Edward Curry. Curry had a shot of coal hanging on his side, which fell and brought with it a piece of coal on McFall's side, weighing about two hundred pounds, which caught McFall on the head and breast; and according to the testimony of persons that were present at the time, must have ruptured a blood vessel. He died in about five minutes after the accident, choked by blood.

Accident No. 66.—William Herington, an old man, sixty years of age, working at Robbins' mine, was fatally hurt, December 22, by a fall of horseback. He was a native of England, and had only been in this country since the 2d of June last. He was hard of hearing, and the pit boss claimed that he had put him to work in this room because he considered it a safe room, on account of its not having any draw slate over the coal. His son, Isaac, had been helping his father a couple of days before the accident, to widen his room. The room, at the time of the accident, was only about fourteen feet wide, and only a short distance from the entry. No one suspected the presence of a horseback where it fell, the top being smooth under it but a short distance back. The top bulged a little, and the old man had a prop set under that. The time of the accident was about ten o'clock, A. M., and he died at two o'clock, P. M. He was very seriously injured, the thigh of his right leg broken, and was badly bruised across the bottom of his abdomen.

Description of Non-fatal Accidents.

ACCIDENT No. 1.—Joseph Harper, a driver, employed in the Ætna and Vesuvius mine, Allegheny county, was injured by being caught, on the 8th of January, between the pit cars and the ribs.

ACCIDENT No. 2.—John Marm, a married man, aged fifty-two, had his thigh fractured, on the 5th of January, by a fall of roof at the Isabella mine, Westmoreland county.

ACCIDENT No. 3.—Peter Kountz and Thomas Payne were burned by an explosion of fire-damp, at the Standard mine, Westmoreland county. They had been sent by the mining boss, Elijah Parker, to build a stopping near a fall where gas was found. They had safety lamps, and were told to use them, but instead of doing that they trusted to open lights, which exploded the gas, and both were buried seriously. The explosion also ignited the coal, and the safety of the mine was endangered, but with some difficulty it was extinguished and made safe.

ACCIDENT No. 4—Charles Claude had both of his legs injured at the Barnes mines, Butler county. The thigh of one of his legs was broken, and the hip of the other bruised. The cause of the accident was a fall of roof while working drawing a room pillar, on the 26th of February.

ACCIDENT No. 6.—Charles C. Beaty had his hand crushed by a locomotive, on the 18th of February, at Millwood mine, Westmoreland county.

ACCIDENT No. 7.—On February 18, Alex. Scott was seriously injured by a fall of slate at the M. Graver mine, Allegheny county.

ACCIDENT No. 8.—Thomas Fulerton, a single man, aged thirty-five, had his hand crushed by wagons, at the Amieville mine, operated by N. J. Bigley, in Westmoreland county, February 21.

ACCIDENT No. 9.—John Bender, aged sixteen, on February 24, had his leg broken by a fall of slate, at the Waverly mine, Westmoreland county.

ACCIDENT No. 10.—John C. Carrol, on the 14th of February, had his collar bone broken, at the Loyalhanna shaft, Westmoreland county.

ACCIDENT No. 11.—John Shidle, aged twenty-three, a single man, had his foot broken, February 21, by wagons, at Horner & Roberts' mine, Allegheny county.

ACCIDENT No. 12.—John Mahoney, a miner, working in Hulme's mine, Beaver county, on the 29th of March, had his shoulder and body severely bruised by a fall of roof on the entry, while pushing a car.

ACCIDENT No. 15.—T. E. Johnson, aged twenty-three, married, hurt by a fall of coal in the Saltsburg mine, Westmoreland county, on the 29th of March.

ACCIDENT No. 16.—On the 31st of March, George Garvin, aged thirty-four, married, was injured by a fall of coal, in Coulter & Huff's mine, in Westmoreland county.

ACCIDENT No. 17.—April 14th, a young man by the name of Charles V. Vantine had his leg crushed between pit cars, at the Ætna and Vesuvius mine, while preparing a seat on the hind end of a loaded car, to ride out of the mine; other cars following, caught up and blocked him between the bumpers.

Accident No. 18.—James Brown, single, aged twenty-four, had his leg broken, April 9th, by cage, in the Morewood shaft, near Mount Pleasant, Westmoreland county.

Accident No. 19.—Hilarus Zelitner, aged thirty-five, single, had his leg broken, on the 12th of April, at the Southside mine, by a fall of slate.

Accident No. 24.—Peter Laffey, hurt by a fall of slate, on the 5th of May, in the M. Graver mine, Allegheny county.

Accident No. 26.—On May 31st, John Burt had his ribs broken by a wagon, at Cornell & Werling mine, Allegheny county.

Accident No. 27.—Robert Thompson, leg broken, at the Loyalhanna mine, on May 17.

Accident No. 29.—M. Rhoads, May 31, hurt by wagons at Millwood shaft.

Accident No. 30.—George Phillips, hurt by a fall of slate, on May 26, at Hampton mines.

Accident No. 33.—William Wildman, a single man, had his jaw-bone broken, on the 24th of June, by a fall of slate, in the Southside mine.

Accident No. 34.—Ernest Doering, June 25th, had his back bruised, at the Waverly mine.

Accident No. 35.—Christ. Fishkorn, a married man, had his leg injured—the small bone broken—at the Cornell & Werling mine, June 25.

Accident No. 36.—Robert Robertson, single, twenty years of age, had his leg broken, June 25, at the Youghiogheny slope.

Accident No. 37.—M. Hazlett, a driver at the M. Graver mine, had his hand crushed between the irons on the wagons, and one of his fingers had to be amputated.

Accident No. 38.—Thomas Dixon had his leg broken while drawing a rib at the Coal Run mine, Westmoreland county.

Accident No. 39.—Thomas Forsythe had his leg broken at the Southside mine, operated by the Westmoreland Coal Company.

Accident No. 41.—Peter Boker, August 23, had his foot injured by being caught between cars at the Coulter & Huff mine.

Accident No. 43.—Joseph Bradigan, aged seventeen, September 20, had his leg broken at the Amieville mine by a fall of slate.

Accident No. 44.—Joseph Kirkpatriek had his leg injured, September 1, in Oak Hill mine, No. 4.

Accident No. 46.—S. Murtle, a boy twelve years of age, was hurt, September 26, by a fall of slate, but not seriously, in the Stewardson furnace mine, Armstrong county.

Accident No. 47.—Dennis McGee, on the 26th of September, had his foot mashed by a fall of slate at the Alpsville mine. At the time of the accident McGee was working in a rib. A piece of slate, about seven feet long and about eighteen inches wide in the widest part, fell, crushing his foot so badly that his leg had to be amputated below the knee.

Accident No. 49.—A. R. Aietz, on October 7, was hurt by a fall, but not seriously, at Saltsburg mine, Westmoreland county.

ACCIDENT No. 50.—Nich Worner, October 8, had his foot injured by a fall of slate at Greensburg mine.

ACCIDENT No. 51.—Robert Latimore had his leg broken by a fall of slate in Penn gas shaft, No. 1.

ACCIDENT No. 52.—John Hale, October 20, had his leg broken in two places while at work in the Hampton mine.

ACCIDENT No. 53.—Charles Nelson, October 23, was badly bruised by a fall of slate in the Southside mine.

ACCIDENT No. 54.—William Cunningham, October 29, had his leg broken in the Northside mine by trying to get on a moving trip, after opening a door which blew his light out.

ACCIDENT No. 56.—J. S. Hart, November 3, had his leg broken by a fall of slate, while at work in Saltsburg mine.

ACCIDENT No. 57.—James Scott, aged seventeen, had his thigh broken November 21. He was working in the M. Graver mine, and, while going to his work, walked over a trestle and fell about fifteen feet. The accident occurred about five o'clock, A. M.

ACCIDENT No. 59.—Thomas S. Keir, December 3, had two of his ribs broken and otherwise hurt by being caught between rib and wagon in the Bellview mine.

ACCIDENT No. 60.—William Cousins, a boy thirteen years of age, December 20, was slightly injured by a fall of slate in the Stewardson mine.

ACCIDENT No. 61.—Frank Maloy, age seventeen, had his leg broken on the 10th of December in the Armstrong mine.

ACCIDENT No. 62.—John Sloan, December 29, had his collar bone broken in Loyalhanna mine. He was a driver and was caught betweeen the pit wagons.

ACCIDENT No. 63.—D. S. Wilcox, December 15, had his head and back injured by a fall of coal in the Saltsburg mine.

ACCIDENT No. 64.—Arthur McNally, December, 18 was bruised on the head and shoulders by a trip getting off the track, throwing down timbers and loose stuff at the Northside mine.

ACCIDENT No. 65.—S. Deemer, working at Penn Gas Shaft, No. 1, had his leg broken by a fall of slate on the 2d of December.

ACCIDENT No. 67.—On the 16th of December an explosion of gas took place, by which the following persons were badly burnt: John Jones, Joseph Shaw, William Shaw, S. Shaw, William O'Donnell, and J. O'Donnell. This accident occurred in the Ocean mine. Jones and Joseph Shaw were burnt very severely, and, at one time, their recovery was considered doubtful. The accident occurred under the following circumstances: The roof, or rather the top coal up to the rock, of William Shaw's room had fallen in, on the night of the 15th, and gas had accumulated above the fall. On the morning of the 16th, the above named persons had gone into the room to see the fall. While they were there, Joseph Shaw attempted to go over the fall with a naked light to get his brother William's tools that were in the face of the room. As soon as he started to go over the fall the gas ignited, burning the whole six as stated.

TABLE I.—SHOWING LOCATION OF COLLIERIES IN THE SECOND BITUMINOUS MINE DISTRICT.

Name of Colliery.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Natrona Mine,	Pennsylvania Salt Manufacturing Company,	Allegheny,	W. H. Richards,	Natrona post-office.
Bellview Mine,	Bellview Coal Company,	do.	P. Y. Hite,	Hite Station post-office.
Etna Mine,	do. do.	do.	do.	do.
Milesville Mine,	Robert Jenkins,	do.	Robert Jenkins,	Sunny Side post-office.
Sandy Creek, No. 1,	N. Y. & C. Gas Coal Co.,	do.	J. W. Doak,	White Ash post-office.
Sandy Creek, No. 2,	do. do.	do.	do.	do.
Plum Creek, No. 1,	do. do.	do.	do.	do.
M. Graver Mine,	M. Graver & Co.,	do.	William Fisher,	do.
Osceola Mine,	Osceola Coal Company,	do.	F. H. Dewees.	
Weinman's East End,	Jacob Weinman,	do.	Jacob Weinman,	Wilkinsburg, Pa.
Weinman & Co. Mine,	Weiuman & Co.,	do.	do.	do.
Hampton Mine,	Hampton Coal Company,	do.	Major Lawton,	do.
Duquesne Mine,	N. Y. & C. Gas Coal Company,	do.	J. W. Doak,	White Ash post-office.
Oak Hill, No. 3,	do. do.	do.	John McIntosh,	Turtle Creek.
Oak Hill, No. 4,	do. do.	do.	do.	do.
Corey Mine,	J. B. Corey & Co.,	do.		
Spring Hill,	Westmoreland Coal Company,	do.	F. Z. Schellenberg,	Irwin Station.
Alpsville Mine,	Hackett & Rafferty,	do.	J. J. Mahoney,	Duncan post-office.
Old Eagle Mine,	W. H. Brown's Heirs,	do.	John Perry,	Elk Horn post-office.
Winona Mine,	James Skillen & Co.,	do.	James Skillen,	West Elizabeth.
Horner & Roberts,	Horner & Roberts,	do.	Samuel Roberts,	Elizabeth.
Wood & Shrader,	Wood, Shrader & Co.,	do.	William Shrader,	do.
Bellview Mine,		do.		
Robbins Mine,	Robbins & Co.,	do.	M. R. Smith,	McKeesport.
Penny Mine,	Lynch & Robinson,	do.	D. H. Lynch,	do.
Youghiogheny,	James O'Neil,	do.	James O'Neil,	do.
Cornell & Werling,	W. H. Brown's Heirs,	do.	Robert Cornell,	Boston, Pa
Watson Shaft,	Watson & Brother,	do.	James Watson,	Allegheny City, (Box 3.)
Keystone, No. 1,	W. H. Brown's Heirs,	do.	W. S. Brown,	113 Water street, Pittsburgh.
Keystone, No. 2,	do. do.	do.	do.	do. do.
McCloskey Mine,	do. do.	do.	do.	do. do.
Plum Creek, No. 2,	N. Y. & C. Gas Coal Company,	do.	J. W. Doak,	White Ash post-office.
Kittanning, No. 1,	Kittanning Iron Company,	Armstrong,	H. A. Colwell,	Kittanning, Pa.
Kittanning, No. 2,	do. do.	do.	do.	do.
Mahoning Mine,		do.		
Stewardson Furnace Mine,	F. B. & A. Laughlin,	do.	James Patrick,	Mahoning post-office.
Reimerton Mine,	Franklin Coal Company,	do.	John Wagner,	Remerton post-office.
Red Bank Mine,	Fairmount Coal Company,	do.	J. M. Brinker,	Fairmount City, Clarion co., Pa.
Mahoning Furnace Mine,	Wesley, Wilson & Co.,	do.	Wesley Wilson,	Mahoning post-office, Armstrong co.
Freeport Mine, No. 1,	James O'Mealy,	do.	James O'Mealy,	Freeport, Armstrong co.
Freeport Mine, No. 2,	do.	do.	do.	do. do.
Acbarr Mine,	J. L. Turner,	Butler,	J. D. Morse,	Hilliard.
Burnett Mine,	A. Burnett & Co.,	do.	A. Burnett.	do.
Keister Mine,	Union Coal and Coke Company,	do.	George G. Stage,	Greenville, Mercer co.
Barnes Mines,	Mercer Mining and Manufacturing Company,	do.	Richard Lewis,	Pardoe, Mercer co.
Karns City Mine,	R. H. Fullerton,	do.	William Pemberthy,	Karns City, Butler co.

TABLE I.—SECOND BITUMINOUS MINE DISTRICT—*Continued.*

NAME OF COLLIERY.	Name of Company.	Location— ounty.	Name of Superintendent.	Post-Office Address
Turner Mine,	J. M. Turner.	Indiana,	J. M. Turner,	Blairsville, Indiana co.
Baker Mine,	W. L. Scott & Co.,	Beaver,	L. S. Hoyt,	Rock Point, Beaver co.
Mansfield Mine,	I. F. Mansfield,	do.	I. F. Mansfield,	Cannelton, Beaver co.
Davidson Mine,	A. Davidson,	do.	A. Davidson,	Beaver Falls, Beaver county.
Beaver Block,	James Sutherln,	do.	James Sutherln,	East Palestine, Ohio.
Clayton, No. 1,	James Clayton & Brother,	do.	James Clayton,	Beaver Falls, Beaver co.
Clayton, No. 2,	do. do.	do.	do.	do. do.
Hulmes Mine,	John Hulmes,	do.	John Hulmes,	do. do.
Butt Mine,	F. Butt,	do.	F. Butt,	Enon Valley—not running.
Sterling Mine,	do.	do.	do.	do. do.
Coburn Mine,	James H. Coburn,	do.	J. H. Coburn,	Beaver Falls, Beaver co.
West Newton Shaft,	West Newton Coal Company,	Westmoreland,	W. H. Watt,	West Newton, Westmoreland co.
Youghlogheny Slope,	Robert H. Lathmore,	do.	Robert H. Lathmore,	do. do.
Markle Mine,	C. P. Markle & Son,	do.	D. Cockanour,	do. do.
Amleville Mine,	N. J. Bigley,	do.	Hugh McGinn,	Suterville, Westmoreland co.
Ocean Mine,	W. L. Scott & Co.,	do.	John F. Hosack,	Scott Haven, Westmoreland co.
Youghlogheny and Ashtabula Mine,	Youghlogheny and Ashtabula Coal Company,	do.	John Blythe,	Youghlogheny P. O., Westmoreland co.
Armstrong Mine,	C. H. Armstrong & Son,	do.	Robert Marshal,	Buena Vista, Allegheny co.
North Webster,	John Gilmore,	do.	George Gilmore,	Webster, Westmoreland co.
Webster Coal Works,	Sneathen & Wilson,	do.	Thomas S. Briggs,	do. do.
Jones & Watkins,	Jones & Watkins,	do.	Thomas Watkins,	do. do.
Iron City,	Phillips & Mettenzway,	do.	Sol. Stroup,	do. do.
Rostraver,	D. W. Clark,	do.	Abram Rupert,	Lock No. 4 post-office, Washington co.
Rea Mine,	Hodgen & Crumber,	do.	John Crumble,	Sunny Side, Allegheny co.
Arnold Mine,	Arnold Coal Company,	do.		Burrell post-office, Westmoreland co.
Eureka Mine,	Fox & Kifer,	do.	Albert Kifer,	Scottdale, Westmoreland co.
Pittsburgh and Kiskiminetas,	Pittsburgh and Kiskiminetas Coal Company,	do.	Albert Hicks,	Leechburg, Armstrong co.
St. Clair Mine,	St. Clair Coal and Coke Company,	do.		Latrobe, Westmoreland co.
Rankin Mine,	H. Laferty, H. Ribka, and W. Evans,	do.	H. Laferty,	Monongahela ity, Washington co.
Bagdad Mine,		do.	John Schwalm,	Leechburg, Armstrong county.
Unity Coal Company Mine,	Unity Coal Company,	do.		Latrobe, Westmoreland co.
Union Works,	J. Somer,	do.		
Shaft No. 1,	Penn Gas Coal Company,	do.	William Wilson,	Irwin Station, Pa.
Shaft No. 2,	do. do.	do.	do.	do. do.
Shaft No. 3,	do. do.	do	do.	do. do.
Mine No. 3,	do. do.	do.	do.	do. do.
Mine No. 4,	do. do.	do.	do.	do. do.
Coal Run,	do. do.	do.	do.	do. do.
Larimer, No. 2,	Westmoreland Coal Company,	do.	F. Z. Shellenberg,	do. do.
Larimer, No. 3,	do. do.	do.	do.	do. do.
Southside Mine,	do. do.	do.	do.	do. do.
Northside Mine,	do. do.	do.	do.	do. do.
Shafton,	do. do.	do.	do.	do. do.
Westmoreland Shaft,	do. do.	do.	do.	do. do.
Foster Slope,	do. do.	do.	do.	do. do.

Greensburg Mine,	Coulter & Huff,	do.	A. W. Jones,	Greensburg, Pa.
Monastery Mine,	Edgar Thompson Steel Company,	do.	Robert Ramsay,	Latrobe, Pa.
M. Saxman,	M. Saxman, Jr., & Co.,	do.		do.
Loyalhanna,	Loyalhanna Coal and Coke Company,	do.	Morris Ramsay,	do.
Millwood,	Millwood Coal Company,	do.	Albert Ford,	Millwood Station.
Isabella,	Isabella Furnace Company,	do.	W. C. Grest,	okeville.
Ridge View Mine,		do.		
Saltsburg Mine,	Saltsburg Coal Company,	do.	W. B. Robinson,	Saltsburg, Indiana co.
Mill Bank,	Laufman & Co.,	do.	John Osborn,	Apollo, Armstrong co.
Leechburg Colliery,	D. B. Ashbaugh & Co.,	do.	D. B. Ashbaugh,	Leechburg, Armstrong co.
South-West Mine,	South-West Coal Company,	do.	J. W. Stoner,	Tarr post-office, Westmoreland co.
Dillinger and Tarr Mine,	Dillinger & Tarr,	do.	Peter Tarr,	do. do.
Amerieus Works,	S. Warden & Co.,	do.	G. W. Stoner,	Stoner's post-office, Westmoreland co.
Union Coke Mine,	Hurst, Stoner & Co.,	do.	Braden Hurst,	do. do.
Enterprise,	G. T. Rafferty & D. L. Dillinger,	do.	D. L. Dillinger,	Scottdale post-office, Westmoreland co.
Rising Sun,	Markle & Co.,	do.	George Markle,	Mount Pleasant.
Bessemer Mine,	C. P. Markle & Son,	do.	F. McClain,	do.
Alice Mine,	J. M. Schoonmaker,	do.	Charles McSweeney,	Scottdale, Westmoreland co.
Morewood, Shaft A,	Morewood Coal Company,	do.	J. S. Schoonmaker,	Mount Pleasant.
Morewood, Shaft B,	do. do.	do.	do.	do.
Standard Slope,	A. A. Hutchinson & Brother,	do.	Charles Cunningham,	do.
Standard Shaft,	do. do.	do.	do.	do.
Hazlett Shaft,	Boyle & Rafferty,	do.	James Devlin,	Stauffer Station.
Hazlett Slope,	do.	do.	do.	do.
Mullen Mine,	Mullen, Strickler & Co.,	do.	J. P. McIntyre,	Mount Pleasant.
Buckeye Mine,	J. M. Cochran Heirs,	do.	F. Bliss,	Stauffer Station.
West Overton Mine,	A. C. Overholt & Co.,	do.	F. Overholt,	West Overton.
Waverly Mine, No. 1,	Waverly Coal and Coke Company,	do.	Thomas Neel,	Smithton post-office.
Waverly Mine, No. 2,	do. do.	do.	do.	do.

TABLE II.—*A Statement showing Characteristics, Number of Employés, Production, etc., of the respective Collieries in the Second Bituminous Mine District, for five months ended May, 1881.*

NAME OF COLLIERY.	CHARACTER OF COAL. (Bituminous or Semi-Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners—men.	Number of miners—boys.	Other employees.	Total employees.	Number of mules inside.	Number of mules outside.	Number of locomotives.	Total production of coal in tons.
Acbarr,	Bituminous,	Slope,	1	1	15	1	47	3	9	59	2	. .	. .	1,120
Baker Bank,	do.	Drift,					78	16	7	101	6	1	. .	15,314
Barnes,	do.	Drift,	2	1	30	2	88		7	95	6	4		
Beaver,	do.	Drift,	2		. . .	1	82	18	32	132	10	5	. .	12.231
Bellview,	do.	Drift,	1	1	10	1	42	1	6	49	5		. .	11,184
Bethel Shaft No. 3,	do. (block,)	Shaft,	2	1	35	3	38	10	4	52	2	. . .	. .	1,252
Catfish No. 3,	do.	Drift,	.	. . .	. .		18	1	1	20	1		. .	670
Clinton,	do.	Drift,	. .				58	10	17	85	7	7	. .	9,953
Coal Centre,	do.	Shaft,	1	1	15	1	22	5	5	32				3,224
Church Hill,	do.	Drift,	.	.			35	2	7	44	2	1	.	3,595
Davidson, (Beaver Falls,)	do.	Drift,	. .	. .	.	.	12		2	14	1			1,321
Davidson,	do.	Drift,	. .	. .	.	.	58	18	12	88	5	2	. .	7,900
Diamond,	do.	Drift,	.	. .	.		21	1	5	27	4	. .		5.496
Edenburg,	do.	Drift,	. . .	. .			33	3	9	45	2	1	.	8 800
Etna and Vesuvius,	do.	Drift,	.	. .			97	5	13	115	10		. .	26,676
Fairmount No. 1,	do.	Drift,	. .	.	.		5		2	7	1	1		298
Fairmount No. 2,	do.	Drift,	.			.	77	5	5	87	6	6		11,108
Fairmount No. 4,	do.	Drift,	.	. . .		.	65	4	4	73	6	6		8 006
Franklin,	do.	Drift,	. .			. . .	28	1	4	33	2	1		2,239
Hamilton,	do.	Drift,	. .	. .			55	7	14	76	5	2		22.142
Hardscrabble,	do.	Drift,	.				51	8	9	68	3	. . .		11,500
Hickory,	do.	Shaft,	3	1	20	4	50	9	21	80	8		.	8 075
Home Bank No. 2,	do. (block,)	Shaft,	1	1	25	2	37	7	5	49	2	.	. .	9,108
Hulmes,	do.	Drift,	. . .	. .	. .		16	5	4	25		.	.	2,440
Jackson,	do.	Drift,	. . .	. .	. .		27	3	7	37	2	2	. .	4,445
Joy Hill,	do. (block,)	Drift,		. .		. .	18	3	5	26	3	.	. .	925
Kittanning,	do.	Drift,		. .	. . .		62	7	2	71	5	2	. .	4,367
Lackawannock,	do. (block,)	Shaft,	5	1		6	110	6	9	125	4	. . .	.	16 248
Lower Hillville,	do.	Drift,	.	.	.	.	20	3	3	26	2	.		3,453
Mansfield,	do. (cannel,)	Drift,	.	.	.		26	1	3	30	1	1		5,450
Maple Grove,	do.	Drift,	.	. . .	.	.	40	2	19	61	4	2	1	4,049
Mineral Ridge,	do.	Drift,	.	. .	.		68	12	15	95	6	1	.	11,490
Natrona,	do.	Drift,	1	1	20	1	39	3	13	55	10	1	. . .	12,551
New Catfish,	do.	Drift,	.	. .	.	.	78	7	6	91	4	. . .	. . .	13,192
Oakland No. 3,	do. (block,)	Shaft,	2	1	. .	4	33	3	4	40	2	. . .	. . .	1,130

Pacific,	do.	do.	Slope,	2	1	40	2	39	10	21	70	4	4	.	.	.	4,937
Pancoast,	do.	do.	Drift,	.	.	.	.	31	7	9	47	4	.	.	.	.	13,211
Pardoe,	do.	do.	Drift,	2	.	.	.	100	8	10	113	7	.	1	.	.	.
Philadelphia,	do.	do.	Drift,	.	1	50	2	16	5	3	24	3	3	.	.	.	1,330
Pine Run,	do.	do.	Drift,	.	.	.	.	75	12	13	100	4	2	.	.	.	16,134
Rankin,	do.	(block,)	Shaft,	1	1	50	3	54	12	17	83	3	.	.	.	.	8,987
Red Bank,	do.	do.	Drift,	.	.	.	.	28	2	5	35	2	1	.	.	.	3,137
Red Bank Furnace,	do.	do.	Drift,	.	.	.	.	39	12	14	65	4	3	.	.	.	10,670
Soldiers' Run,	do.	do.	Drift,	.	.	.	.	72	4	15	91	6	.	.	.	.	.
Stewardson Furnace,	do.	do.	Drift,	.	.	.	.	15	8	18	41	6	.	.	.	.	7,100
Stoneboro',	do.	do.	Slope,	.	1	50	1	123	21	22	166	11	.	.	.	.	8,361
Union Coal and Coke,	do.	do.	Drift,	.	.	.	.	40	4	5	49	3	.	.	.	.	.
Washington,	do.	do.	Drift,	.	.	.	.	24	2	8	34	3	.	.	.	.	10,361
Wheeler,	do.	(block,)	Shaft,	2	.	.	2	31	2	7	40	3	.	.	.	.	5,043
Wise,	do.	do.	Shaft,	2	1	40	5	50	4	6	60	5	.	.	.	.	15,500

TABLE II.—*A statement showing characteristics, number of employés, production, etc., of the respective collieries in the Second Bituminous Mine District, for the seven months ended December, 1881.*

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi-bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse-power.	Number of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	Number of mules inside.	Number of mules outside.	Number of locomotives.	Total production of coal in tons.
Aebarr,	Bituminous,	Slope,	1	1	15	1	45	5	16	66	3	1		9,272
Amleville,	do.	Drift,					111	10	15	136	6	3		38,445
Armstrong,	do.	Drift,	2			1	83	7	12	102	10	1		8,600
Baker Bank,	do.	Drift,					96	19	7	122	6	1		31,896
Barnes,	do.	Drift,	2	1	30	3	84		11	95	6	3		
Bellview,	do.	Drift,	1	1	10	1	40	2	5	47	5			14,508
Bessemer,	do.	Drift,					51		5	56	4	6		38,387
Buckeye,	do.	Drift,	2		40	2	33	1	26	60	5	4		1,680
Burnett,	do.	Drift,	1			1	22	3	9	34	1	1		1,327
Coal Run,	do.	Drift,					182	24	37	243	17	1		
Cornell & Werling's,	do.	Drift,	2	3		4	135	10	27	172	6	1		20 166
Coulter & Hough,	do.	Slope,	2	2	50	3	80		15	95	8	2		10,427
Davidson, (Beaver Falls,)	do.	Drift,					12		3	15	1	1		207
Duquesne,	do.	Drift,					111	23	10	144	8			29,025
Enterprise Coke Works,	do.	Drift,					12	2	4	18	4			
Etna and Vesuvius,	do.	Drift,					85	7	13	105	10			26,509
Greensburg,	do.	Slope,	2	2	50	3	100		17	117	7	2		10,000
Hampton,	do.	Drift,	1	1			155	19	25	199	16			
Hazlett,	do.	Shaft,	4	1	60	4	44	2	10	56	5	1		
Hazlett,	do.	Slope,	1	1	60	2	36	4	8	48	5	3		
Holmes,	do.	Drift,					15	4	2	21				5,340
Iron City,	do.	Drift,	2			2	55	6	12	73	4	4		4,711
Isabella,	do.	Slope,	1	1		1	83	7	17	107	10			44,948
Jones & Watkins,	do.	Drift,					50	5	5	60	4			1,771
Kittanning,	do.	Drift,					55	9	3	67	5	2		12,000
Larimer,	do.	Drift,					145	2	28	175	7	1		58,211
Latrobe,	do.	Drift,					34	3	9	46	6			5,358
Lecchburg,	do.	Drift,					65	9	14	88	7			20.100
Loyalhanna,	do.	Shaft,	3	2	90	6	81	12	31	124	13	3		67.333
Mahoning Furnace,	do.	Drift,					21	2	5	28	2	1		4 927
Mansfield,	do. (canel,)	Drift,					30	1	2	33	1	1		7,900
M. Graver,	do.	Drift,		3	60	3	127	9	33	169	15	6	3	57,931
Millwood,	do.	Slope and shaft,	1	2	90	6	65	4	15	84	9			

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TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Second Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Leechburg Mine,	By furnace,		fire bed, 48′	14,000	3	5	40	35
Etna and Vesuvius Mine,	By furnace,			28 380	3	3	51	60
Bellview Mine,	By exhaust steam,			14 219	2	1	46	59
Stewardson Furnace Mine,	Natural vent,			4,200	3	2	24	20
Iron City Mine,	Furnace,		7x7½	8,188	4	3	42	42
Natrona Mine,	Natural,			8,325	3	5	150	75
Armstrong Mine,	Furnace,		7x7	14,400	2	4	33	36
Waverly Mine,	Furnace,		7x20	19,000	3	4	36	64
Jones & Watkins,	Furnace,		6x8	8,400	3	6	42	42
Davidson Mine,	Furnace,		4x5	7 500	2	1	42	20
M. Graver Mine,	Natural,			9,225	4		45½	45½
Saltsburg Mine,	Furnace,		6x12	9,450	4	3	48	45
M. Saxman Mine,	Natural,			7,560	2	3	42	42
Shafton Mine,	Exhaust steam,			11,550	2	3	48	48
Northside Mine.	Natural,			6,960	2	2	48	48
Westmoreland Shaft,	Fan,	12		19.446	2	10	50	
Larimer Mine,	Natural,			11,900	6	7	45	45
Southside Mine,	Furnace,		14x10	30.160	4	30	50	51
Amieville Mine,	Natural,			10.720	6	7	48	48
Millwood Mine,	Fan,	12		16,000	2	6	50	100
Rostraver Mine,	Furnace,			12,800	4	6	35	40
Webster Coal Works,	Natural,			7,584	3	3	60	42
Hampton Mine,	Furnace,		8x8=64	12,400	3	8	42	40
Enterprise Coke Works,	Natural,			6 180	5		49	64
Mansfield Mine,	Fan and furnace,			4 500	2	1	35	45
Kittanning Mine,	Natural,			4,800	3	7	48	48
Penn Gas Shaft, No. 1,	Fan,	12		23 400	4	36	51	51
Penn Gas Shaft, No. 2,	Fan,	12		32,000	3	44	49	40
							58	
Penn Gas No. 4 Mine,	Furnace,		56′	28,800	8	30		72
Coal Run Mine,	Furnace,		48′	24.820	7	35	44	34
Oak Hill, No. 3,	Furnace,		4x6	9,450	3	1	45	45
Oak Hill, No 4,	Furnace,		8x9	27.160	6	4	45	46
Plum Creek Mine,				20,247	6	8	49	56
Sandy Creek Mine,	Furnace,		8x25	13.440	24	22	48	48
Duquesne Mine,	Natural,			16,920	8		40	40
Hulmes Mine,	Furnace,		4x26	4,500	2	3	33	16
Ocean Mine,	Furnace,		8x26	19,000	3	16	48	48
Loyalhanna Mine,	Furnace,		6x8	16,660	3	6	80	49
Bessemer Coke Works,	Furnace,		3½x4	11,655	3	3	49	63
North Webster Mine,	Furnace,		6x8	24,000	3	5	40	48
Mahoning Furnace Mine,	Natural,			2,500	4		35	35
Red Bank Mine,	Furnace,			6,960	3	3	42	48
Barnes Mines,	Natural,			13,990	18		35	36
Acbarr Mine,	Furnace,			6,432	2	2	42	32
Union Coal and Coke Co.'s Mines,	Furnace,		4x9	4,000	3	3	38	38
Baker Mine,	Furnace,			12.600	2		36	42
Burnett Mine,	Furnace,		4x4	3 360	2		42	20
Alpsville Mine,	Natural,			9,600	4	4	72	40
Buckeye Mine,	Natural,			6,300	4	3	49	38
Cornell & Werling,	Furnace,		7x9	20 000	4	10	44	42¼
Horner & Roberts,	Furnace,		7x9	23 695	4	10	51	37
Alice Mine,	Furnace,		7x6	28,160	2	2	64	64
Isabella Mine,	Exhaust steam,			15.336	4		42	42
Eureka Mine,	Furnace,		4x4	3,500	2	4	43	42
Monastery Mine,	Furnace,		43′	24,480	2	5	54	36
Milesville Mine,	Furnace,		7x7	5,950	2		35	35
Morewood, shaft A,	Fan,	6		8,960	2	8	56	56
Morewood, shaft B,	Exhaust steam,			7,840	2	8	56	56
West Newton,	Fan,	6		9,600	2	2	41½	30
Old Eagle,	Furnace,		6x8	7,200	3	4	56	48
Oceola Mine,	Natural,			5 000	4		49	41
Greensburg Mine,	Exhaust steam,			24,990	2	4	98	42
Franklin Mine,	Furnace,		4x6	2,320	2	1	40	16

TABLE III.—*Continued.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Hazlett, No. 1,	Steam exhaust,			6,400	2		44	
Hazlett, No. 2,	Furnace,		4x5	8,200	3		48	
Standard Mines,	Fan,	6		30,000	2		30	54
Keystone Mine,	Furnace,		7x5½	13,200	25		40	43
McClosky Road Mine,	Natural,			7,315	11		42	39
Latrobe Mine,	Natural,			9,800	2	2	49	72
West Overton,	Natural,			5,716	5	4	42	36
Winona Mine,	Natural,			2,660	2	4	38½	27
Wood, Shrader & Co.'s Mines,	Furnace,			7,050	5		41	47
St. Clair Mine,	Natural,			5,290	2	2	48	23
Ridgeview Mine,	Natural,			6,720	2	2	48	23

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries in the Second Bituminous Mine District during the year 1881.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Acbarr,	. . .	. . . .	. .	. . . .	. . .	. . . .	.		45	1,445								
							160	7,200	45	1,445								
Baker Bank,	275	9,900	225	6,750	375	15,750	275	9,900	250	7,500	375	15,750	300	10,800	275	8,250	375	15,750
Beaver,	. . .	. .	200	3 600	. . .	. .	. . .		150	5,400	. . .	. .		. . . .	150	3 000		
			275	4,950					200	8,400	. . .	.	.	. . . .	200	7,000		
	300	18 800	350	6 300	700	14,000			350	6,300				.	333	5,994		
							350	12,600	250	4,500	800	24 000	275	9,900	200	3,600	700	25,200
Bellview,			105	5,775					122	6,710					89	5,445	248	9 672
	246	11,316	157	7,222	504	19,656	299	13,153	241	11,386	421	16,419	231	10,626	165	7,590	132	9,240
Bethel Shaft, No. 3,		5,000				4,800												
Catfish, No. 3,	200	7,500	180	7,560	200	7,500												
Church Hill,	60	2,160	60	2 160	60	2,160			60	2,160			60	2,160	50	1,800	70	2,520
	40	1 440	70	2,520	60	2,160	150	7,400	70	2 520	150	7,400	60	2 160	40	1,440	70	2,520
Clinton,	120	5 040	130	3,900			140	5,880	140	4,200			110	4,620	120	3 600		
	130	3 900	130	3,900	450	13,500	130	3,900	140	4,200	450	13,500	120	3 600	110	3,300	350	10,500
Coal Center,	100	4,200	110	2,640	105	4 470							100	2,400	90	2,160	90	7,200
Davidson, (Beaver Falls,)	115	3,692	150	4,500	500	10,000	150	4,800	166	5,000	500	10,000	187	6,000	214	6,428	500	10,000
Davidson,	160	3 200	80	2 800			240	2 880	140	4 900	. .				60	2,100		
	210	2 520	80	2,800	150	5,400	140	2,800	140	4 900	160	5,760	180	3 600	50	1,750		
													140	2,520	50	1,750	180	6,480
Diamond,	83	3,000					100	3 600					127	3,700				
Edenburg,	400	12,100	350	9 800	300	12,150	350	10,587	300	8,400	350	14,175	300	9,075	350	9,800	300	12,150
Etna and Vesuvius,	. . .	. .	118	6,490			131	6,681	163	8,965	.		95	4 845	114	5,476		
	124	5,324	182	10,202	. .	. . .	345	13,455	147	8 232			166	11,620	66	3,446		
			211	12 238		. . .	. .		85	4,335			192	7,680	180	10,080	541	32,460
			165	8,415			. .	. . .	241	13 496	532	31,920						
	444	17,316	241	14 460	551	33,060												

Fairmount, No. 1,	375	15,750	166	6,972														
Fairmount, No. 2,	300	12 000	200	8 400	300	10,800			166	7,072								
							375	15,750	150	6,300	375	13,500						
Fairmount, No. 4,	400	16,000	272	10,880	500	12,500			200	8,400	375	15,750						
							171	6,840	142	5,680	240	9,600						
Franklin,													68	2 380			170	2,040
Hamilton,	160	7 048			250	7,500	140	6,720			280	8 400	150	6,600				
	100	4,800	180	7 200	250	4 000	120	5 280			250	4,000	50	2,400	180	7,200	300	9,000
Hardscrable,	100	3.900	60	2.560	100	2,000	100	3,900	65	3 150	95	1,900			60	2,900		
	90	1,800	30	1,280	95	1,900	90	1 800	50	2 400	100	2,000	90	3,500	50	2,400	95	2.900
													95	1.900	30	1,400	80	1.600
Hickory,		12,000		10,500		12,000		11 000		10 000		12 000	565	11,300	233	10,500	383	11,500
Home Bank, No. 2,	150	7,425	120	6,000	140	6,930	140	6 930	125	6,250	145	7 105	130	6 435	125	6,250	135	6 682
Hulmes,													106	3.498	100	2 400	150	3.600
Jackson,	305	9,150	300	7 200	300	9,000	350	10,500	310	7,440	355	10,650	340	10,200	300	7 200	357	10 710
Joy Hill,	250	6,250	280	2 520	300	5,400							270	7.425	240	2,520	290	5,655
Kittanning,	130	3,120					180	5,580	150	5.400			160	3.840	140	5,040		
	110	2 970	105	3,780	120	3,600	190	4,340	170	6,112	290	8,700	180	5,580	150	5,400	240	7.440
Lackawannoek,													110	3,085	75	2 887	75	2,103
													90	2,524	65	2,275	85	2,184
Lower Hillville,	200	9 000	150	6,300	200	8.400	175	7,875	160	6,720	180	7,560	150	6,700	150	6 300	150	6 300
Mansfield,	120	4,620	600	3 600	110	5,005	120	4,620	600	3 600	110	5,005	120	4,620	550	3,300	100	4 550
Maple Grove,			125	3,750					126	3 780					127	3,810		
	255	7,650	93	2.790	412	12,630	213	6,390	85	2,550	409	12 270	221	6,630	86	2,580	411	12,300
Mineral Ridge,	100	4,900	150	5,250									100	4.900	150	5,250		
	250	8.750	150	5,250									120	4,200	250	8,750		
	86	3 010	180	6 300	500	12 500							300	10.000	187	6.545	500	12,500
Natrona,	124	18 600			162	12 150	247	37 050			130	10 200	288	4 320			130	9,750
New Catfish,	200	8,800	200	8,400	300	10,800	160	6 720	140	5,880	200	7,200	150	6,700	190	6,400	230	8,280
Oakland, No. 3,	160	6 132	200	5,166	370	6,808												
Pacific,	300	10,800	90	2,850	380	8 550									190	2,280		
													320	11,500	190	2,280	460	9 200
Pancoast,			60	1,620					40	1 000	50	1 350			55	1,980		
	240	4,800	110	4 070	350	14 364	250	5,000	95	3,575	270	11,070	240	4,800	100	3,7 0	350	14 700
Philadelphia,	170	3,400	100	1,200	100	2 750	180	3,600	90	1.080	90	2,480	180	3,400	100	2.400	100	2,750
									90	1.080								
Pine Run,	175	7,350	80	3,360	180	6.300	180	7,560	80	3.360	180	5,950						
									80	3 360								
Rankin,					240	3,840					185	2,960			125	1,875	225	3.600
	210	9,450	85	1,700	40	1.100	250	11,250	125	2,187	70	1,570	200	9,000	125	1,875	50	1,125
Red Bank,	150	6,300	150	6,000	150	5,400	166	6,972	166	6,972	150	5,400						
Red Bank Furnace,	120	4,080	80	1,920	107	2 675	140	4,760	86	2.064	107	2,675	151	5 168	37	2,088	108	2,700
	115	4,910	95	2,090	97	2,619	122	4,148	89	1,958	85	2,295	141	4 994	96	2,112	115	3,105
Soldiers' Run,			110	5,280			140	6 860	100	4.000					100	4,000		
	140	6,860	125	4.375			150	5,250	150	6,000	350	12 250	140	6 860	150	6 000		
	150	5.250	125	5,000	400	14 000							150	5 250	100	4,800	350	12 250
Stewardson Furnace,	185	4,440	90	4 050	200	4,000	190	4.560	90	4 050	190	3,900	175	4 200	80	3 600	180	3.600
Stoneboro',			100	1.800					110	1.980								
	370	9,250	140	2,800			350	8,750	120	2 400								
			190	4,740					200	5.000								
	105	1,890	250	6,750	390	21,060	110	1,980	210	3,770	370	19,980						

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	January.					February.					March.				
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading	Number of cubic feet passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet passing out.
Washington,	150	5,300	60	1,200	370	15,293	120	5,040	50	1,250	270	11,070	160	6,720	60	1,400	300	12,000
			80	1,280			300	3,600	60	960	400	4,700			80	1,280		
Wheeler,	320	3,900	200	3,000	350	4,200	380	4,400	200	3,200	450	25,00			160	4,080		
Wise,	190	7,980	150	3,825					175	2,500					135	2,700	360	11,880
			140	2,800	350	11,550	240	10,080	140	4,462	340	11,220	190	7,980				
										2,800								

TABLE IV.--VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	April.						May.						June.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Baker Bank,	300	10,800	275	8,250	400	16,800	225	8,100	250	7,500	350	14,700	250	9,000	275	8,250	350	14,700
Barnes,	200	16,000	. .		300	16,000				.	250	9,000	66	16,000			66	16,000
								16,000		.	440	7,000						
Beaver,	250	9,000	300	10,500					100	2,000			*225	8,100	200	7,000	450	16,200
Bellview,	150	3,000	300	5,400	700	25,000	200	7,200	150	5,250	450	16,200						
			119	6,902	231	9,240			80	4,240	216	8,640		. .	66	4,024	173	6,920
	235	10,810	144	6,824	105	7,350	235	10,810	125	5,750	90	6,300	192	8,832	71	3,226	78	5,460
Catfish, No. 3,	. .	. .											*140	6,300	130	5,460	180	6,480
Clinton,	110	4,620	130	3,900			110	4,620	120	3,600			*113	8,100	115	6,900	325	9,750
	120	3,600	140	4,200	350	10,500	120	3,600	120	3,600	400	12,000						
Coal Center,	105	2,520	95	2,280	105	2,520	90	3,780	95	2,280	95	3,990						
Davidson, (Beaver Falls,)	250	8,000	187	5,610	500	10,000												
Davidson,	. .	. .	.	.	.	.		.	40	600			*114	4,674	100	5,000	140	5,040
							150	3,000	100	1,500								
Diamond,		5,000					50	1,050	100	1,500	110	3,960						
Edenburg,	200	6,050	250	7,000	200	8,100		4,500										
Etna and Vesuvius,	114	5,814	124	5,920			300	9,075	300	8,400	250	10,125	*134	4,824	110	1,090	215	4,837
	155	10,850	219	12,264	629	37,740	125	6,375	158	6,842	.		85	4,335	126	6,174		
							116	8,120	118	6,018								
							212	8,480	563	4,340	530	31,800	182	7,280	68	3,468		
Fairmount, No. 2,	300	12,600	200	8,400	200	8,400							85	5,950	405	3,138	386	23,160
			150	6,300														
	300	12,600	200	8,400	200	8,400												
Fairmount, No. 4,	300	6,000	210	4,200	333	9,920												
Franklin,													*292					
Hamilton,	180	7,920	.		300	9,000	120	5,760	.	. .	.	.	*130	28,324	. .	. .	490	29,400
	120	5,760	150	7,200	140	6,160	50	2,400	130	5,200	250	7,500	*100	10,140		. .	130	10,140
Hardscrable,	90	3,510	50	2,400	95	1,900	90	3,510	55	2,640	50	2,400						
	95	1,900	45	2,100	100	2,000	95	1,900	45	2,160	100	2,000		5,900	53	5,100	90	3,600
											105	2,100						

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Hickory,	. . .	10,500		9 500		10,200							*175	7,000	100	5,950	350	10,000
Home Bank, No. 2,	120	5,940	100	5 000	115	5,692	170	5,057	150	4 800	100	4,950	*217	6,748	220	7 040	121	6 002
Hulmes,	120	3,960	110	2 640	300	2,700	500	. .	400	10,600	800	12,800	450	13,500	400	9,600	800	12,800
Jackson,	285	8,550	270	6,480	310	9 300	350	10,500	290	7,020	357	10.710						
Lackawannock,	200	5 000	265	7,287	500	7,600	200	4,800	165	4.537	190	4 750	*	12,240	225	12,000	107	13 750
	275	6,875	250	6.875	450	6.300	200	4 800	165	4,537	180	4,500						
Lower Hillville,	150	6,750	150	6 300	150	6 300							*175	7,875	165	6,930	205	8,610
Mansfield,	120	4,620	550	3,300	110	5,000	100	3,850	550	3,300	100	4,500	100	3.850	550	3,300	100	4,550
Maple Grove,													*123	11,070	71	6,861	530	15,900
Mineral Ridge,	100	4,900	125	6.125														
	160	5 600	100	3,500														
	150	5,250	100	3,500	500	12.500												
Natrona.	142	21 300			170	12.750	84	12 600			160	12 000	130	19,500			205	15,375
New Catfish,	150	6,750	100	4,200	200	7.200												
Oakland. No. 3,													*12	4,677	69	3,554	192	3,520
Pancoast,	250	5,000	110	4,070	350	14,700	120	5,040	100	4,500	130	5,460						
Pardoe,		45,000		20,000		45,000					833	30.000	*1125	45,000	208	7,488	661	40,352
							1,150	46,000		20,000	640	16,000						
Philadelphia,	170	3,400	90	1.080	100	2 750												
Pine Run,	180	7 560	90	3 780	160	5 600	175	7,350	90	3,780	160	5,600	*176	7,402	87	3,675	155	5,425
Rankin,			80	1 400	230	3 680			90	1,620	230	3,680						
	275	12 375	150	1.837	120	3 300	240	10,800	175	2.800	120	3,300						
Red Bank,	165	6,930	170	6 800	195	7.020	160	6,720	170	6 800	200	7,200	160	6 720	160	6,400	190	6 840
Red Bank Furnace,	152	5 168	69	1,725	102	2 550	106	3,607	65	1,625	96	3.264	*132	8,976	75	3,537	120	7 320
	141	4 794	87	1,940	107	2,889	90	3,060	75	1,650	90	2,430						
Soldiers' Run,	140	6 860	150	6 000					150	6 000			*146	12.264	124	9,920	356	12,360
	175	6,725	100	4 800	350	12 250	140	6,860	125	5,000								
							150	5 250	110		350	12,250						
Stewardson Furnace,	185	4 420	90	4 050	190	3,800	160	3 840	80	3,600	190	3 800	165	3 960	80	3,600	180	3 600

| | | |

TABLE IV.—VENTILATION OF COLLIERIES.—*Continued.*

Name of Colliery.	July.					August.					September.				
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Ashart,	100	4,800	120	5,760	100	4,800	110	4,620	110	4,620	90	3,780	165	7,260	150	6,600	135	5,940
Ashley,	100	4,320	100	4,800	70	3,360	80	3,360	70	3,360	60	2,520	150	6,600	130	5,720	120	5,280
Auchinleck,	225	11,700	300	15,600	300	12,000	300	12,600	300	12,600	250	10,500	325	14,300	275	12,100	250	11,000
Avondale,	57	13,000	. .	. .	61	15,000	. .	. .	. .	. .	. .	. .	315	15,000	. .	. .	300	14,000
Baker Bank,	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	358	8,000	. .	. .	350	8,000
Barnes,	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	202	8,292	70	4,480	195	11,505
Bellview,	. .	. .	. .	. .	. .	. .	192	8,832	. .	. .	. .	. .	95	5,320	. .	. .	125	7,875
Bessemer,	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Coal Run,	. .	. .	125	6,000	730	23,820	335	23,630	225	10,025	245	11,250	. .	. .	. .	. .	700	23,800
Coulter & Huff,	. .	. .	220	9,680	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Duquesne,	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	117	1,638	. .	. .	147	4,658
	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	202	9,230	. .	. .	147	4,658
	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	8,460	. .	. .	137	2,740
Enterprise Coal Works,	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	6,510	. .	. .	. .	4,500
	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	4,200
Etna and Vesuvius,	. .	. .	. .	. .	. .	. .	210	11,016	147	8,232	. .	. .	. .	. .	114	6,384	. .	. .
	. .	. .	. .	. .	. .	. .	280	11,760	70	4,020	. .	. .	299	14,739	69	3,036	. .	. .
	. .	. .	. .	. .	. .	. .	280	12,180	580	4,185	542	30,720	. .	. .	454	3,518	230	17,310
Hampton,	. .	. .	. .	. .	240	9,600	235	11,400	235	11,400	230	11,200	. .	. .	. .	. .	. .	. .
Hubnes,	. .	. .	. .	. .	300	11,400	460	. .	460	. .	360	. .	200	14,200	160	. .	350	11,700
Isabella,	. .	. .	. .	. .	240	. .	. .	7,000	. .	. .	330	. .	340	6,300	. .	. .	340	. .
Larkner,	320	15,440	400	. .	220	13,200	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Leechburg,	180	7,200	. .	. .	220	10,800	90	7,200	. .	. .	. .	. .	110	8,800	90	3,780	300	14,700
Loyal Hanna,	60	3,800	160	5,040	300	17,040	180	6,480	160	4,200	. .	. .	100	5,700	. .	. .	. .	2,500
	295	10,620	. .	. .	50	1,750	. .	. .	. .	. .	. .	. .	. .	2,500	. .	. .	. .	. .
Mahoning Furnace,	40	11,000	. .	. .	80	4,005	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Mansfield,	80	3,100	500	3,000	90	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .

M. Graver,	185	8 325			185	8,325	160	7,200			160	7,200	205	9,225			195	8 775
Millwood,	300	15,000	150	6 000	260	11,400	400	18,000	250	12,000	400	17,000	500	25 000	250	10 000	410	17 600
Morewood,	140	7,840	40	2 080	140	7 840												
M. Saxman,	160	6 720	150	6,360	190	7,980	170	7,142	150	6,300	180	7,560	160	6,720	150	6,300	180	7 560
Natrona,	122	18,300			210	15 750	133	19,930			171	12,825	118	17,709			179	13,425
Northside,											78	3,432			90	3,960		
											52	2,080			80	3 200		
Oak Hill No. 3,													190	7,980	110	7,550	190	8,550
Oak Hill No. 4,														21,560		20,310		23,567
Ocean,	455	21,840			475	22 800												
Osceola,		7,410		1 750		4,370							200	9,900	220	9 680		
Penn Gas Coal Company Shaft No. 1,													150	8,662	350	13,300	800	32,000
Penn Gas Coal Company Shaft No. 2,	195	11 260	205	11,590			300	13 050	200	8,800				21,930	400	18,000	430	21,930
	330	16 335	265	7,618	760	30,400	200	11,550	380	14 440	820	32,800						
Penn Gas Coal Company Drift No. 4,			170	9 520					330	19 600					340	19,040		
		39,600	400	11,600	550	31,600		40,320	350	12,600	570	41,040		39,600	300	10,800	550	39 600
														16,031	410	17,220	320	18,000
Plum Creek,	110	4,620	100	4,000	120	4,320							285	5,880	111	5 328	160	5 760
Red Bank,							68	2,720	45	1 575	140	2,240	140	2,800	145	5 800	145	2,320
Relmerton,	155	7,240	140	6,300			150	7,200	130	5 850			70	2,960	50	1,750		
Saltsburg,	45	1,890	40	1,920	220	9,900	70	2,940	65	2,880	295	11,750	135	6,960	90	1,860	200	10,000
													40	1,680	140	6 720		
Sandy Creek,	330	6,900	50	6 600	77	7,590		7,500		7 040		8,250	210	10,080	185	8 975	170	8 170
Shaflon,				13,960		27,940				14,280		33,280		7,500		5,280		8,250
Southside,				5 000						5 000								11 550
Spring Hill,			100	3,500														
			70				310	17,980	190	7,600	250	18,000	350	20,600	200	8 800	270	19,550
Standard,	180	4,320	75	3 375	170	3,400	160	3 840	65	2,925	165	3,300	160	3 840	75	3,375	165	3 300
Stewardson Furnace,	240	8,640	210	8 400	350	22,400	400	14,400	230	9,100	300	10,200	350	12,600	300	12,000	300	19 000
Waverly,					235	10,575						8,865						7,980
Westmoreland,					100	4,200						6,272						5,500

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Acharr,	. .	. .	232	9,280	. . .	. . . .	. .	. . .	. . .	. . . .	. .	. .	. .	. .	223	8 920		
Amieville,	92	3. 864	237	9, 480	200	6 400	90	3 780	230	9. 200	200	6, 400	85	3, 570	228	9, 120	196	6, 272
	80	3. 840	60	2, 880	55	2 440	120	5, 760	110	5, 280	90	4, 320						
	40	1, 920	55	2, 440	60	2, 880	110	5 280	100	4, 800	110	5, 280						
Armstrong,	. . .	. . . .	.	. . .	. . .	. . . .	300	9 900	170	6, 120			. . .		150	6 900		
							130	4 875	90	3 690	400	14 400	350	11 550	100	4, 600	400	14, 400
Baker Bank,	300	10 800	275	8, 250	350	14, 700	300	10, 800	275	8, 250	360	12 600	300	10. 800	275	8, 250	300	12, 600
Barnes,	350	5, 600		. .	. .	. .	353	5 648	. . .	. . .	84	5. 376	355	5, 680	. .	. . .	82	5 248
	350	8, 750	.	.	276	14 350	352	8. 800			84	9, 072	353	8. 825			82	8 856
Bellview,	173	7 958	76	4, 864	223	13. 157	260	11 960	95	5, 354	241	14, 219	237	10. 902	108	5, 724	250	11, 986
Bessemer,	280	12, 180	180	10, 080	240	12, 040	275	11, 550	180	10, 080	210	13, 230	280	11, 760	170	9, 520	190	11, 770
Buckeye,	. . .	. . . .	. . .	. .	.	.	210	6 300										
							130	6, 110	160	5, 139								
Burnett,	. . .	. . . .	.	. .	. . .	. . . .	. .	. .			. . .	. . .	80	3 360		.	160	3, 360
Coal Run,	. . .		150	6, 450			. .		130	5. 850			. .		150	7 500		
		23, 800	240	11 520	690	23. 460	. .	24 140	250	11, 250	710	24, 140		23 800	230	11 500	700	23 800
Davidson, (Beaver Fall,)	. .	. . . .	. .	. . .	. .	. . . .	. .	. . .	. .	. . .			166	7. 000	150	4, 500	375	7. 500
Duquesne,	117	4, 680	. . .	. . .	146	2 920	175	7, 000	. . .	. . . .	88	3, 520	204	8 160	. . .	. . .	98	3. 920
	156	6 240	. .	. . . .	253	9. 120	195	7, 800	. . .	. . .	156	6 240	195	7, 800	. .	. . .	117	4, 650
	127	5 080	. . .	. . . .	88	3, 520	195	7, 800	. . .	. . .	156	6, 240	195	7. 800	. . .	. . . .	337	5 480
	175	7. 000	. .	. .	137	5. 480	. .		. . .	. . .	. . .	. . .	175	7. 000	. . .	. . .	117	4, 680
Enterprise Coal Works,	. . .	6, 960		.	. . .	7, 200	. .	2 220			. . .	6, 720	200	13 440		.	120	6, 180
Etna and Vesuvius,	. . .		85	4 335	. . .	.	. . .		124	6 676	. . .	.	. .	. . .	160	8. 960		
			124	6 944			. .		82	4 182	. . .				122	6. 222		
	323	16. 473	626	4, 608	473	28 380	376	19 176	483	3 743	465	27, 900	357	18. 207	576	4, 425	370	22, 200
Greensburg,	270	26 460	270	12 150	260	10. 920												
Hampton,	280	11 760		. .	310	12 400	270	15, 120	250	11. 000	260	10, 400	280	11 760	.	. . . .	310	12, 400
Hulmes.	500	. .	350	. . . .	800	. . . .	500		380	. . . .	750	. . .	400	.	300		400	
Iron City,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	220	8, 986	60	2, 070	200	8, 188
Isabella,	. . .	. . . .	. . .	. . . .	. . .	. . . .	340	14 280	. . .	. . . .	350	14, 700						

Jones & Watkins,													180	7,500			200	8 40		
Kittanning,	100	4 800					100	4,800	100	4 800	100	4 800	100	4 800	100	4.800	100	4 800		
Larimer,		5 400						6,400								13,020		34,580		
Latrobe,	160	6,720	140	6 500	180	7,560														
Leechburg,							260	12 480	270	12 960	280	16,800	250	12 000	290	13,920	300	18,000		
Loyalhanna,	110	8 800					90	7 200					110	8,800						
	150	5,400	90	3,780	300	14 700	150	5,400	90	3 780	300	14,700	200	7.200	110	4,620	320	15.680		
Mahoning Furnace,													100	2 500				2,500		
Mansfield,	100	3 850	600	3 600	100	4.550	120	4.620	600	3 600	100	4,550	100	3.850	600	3,600	100	4 500		
M. Graver,	195	8.775			190	8.550	210	9 450			200	9 000	205	9.225			200	9,000		
Millwood,	420	19.000	250	10,000	320	12 000	400	22,000	200	10,000	300	11.000	420	22,000	250	10,000	350	16,000		
M. Saxman,							150	6 300	140	5,880	180	7.560	200	8,400	300	9 500	250	10,500		
Natrona,	50	7 500			105	7.875	90	13,500			180	6,825	61	9 150			103	7 725		
Northside,						3,200		3,780						2.940		7,728		8 400		
						3,780		3 800						2 800		4,800		5,880		
North Webster,													225	10.000						
													290	8 000	200		500	24 000		
Oak Hill, No. 3,									150	5,700			180	8.100	170	6,460	210	9,450		
							160	7,200	150	5.700	200	9,900								
Oak Hill, No. 4,							130	5 460	128	4.864			80	3 360	148	5,780				
							130	5 850	208	7,280	275	11,400	85	3 825	80	3 040				
							180	7,560	120	4 580			55	6,510	210	7,350	260	11 960		
							50	2,100	130	4 550	300	11,400	97	4 070	81	2 916	330	12 540		
Ocean,	330	14.850			320	15,360		15 756		11 000		17.300		18 500		10,500		19.000		
Penn Gas Coal Company, shaft 1,		17 100	380	17 100	435	22 185		24,480	425	19,975	480	24,480		24 225	425	19,950	480	24 480		
Penn Gas Coal Company, shaft 2,	200	11,550	230	10.120			310	15.500	260	11.440			300	14 700	250	11,000				
	275	13,612	320	12 160	790	31 600	210	12,180	380	14.440	800	32,000	250	14 600	350	13,300	800	32 000		
Penn Gas Coal Company, drift 4,			320	17.920					340	19 040					325	18.200				
			310	11,160					270	9.720					240	8 640				
		38 880	430	18.050	570	41 040		39.600	330	13.860	470	33.840		32 400	300	12 600	450	32 400		
Plum Creek,	315	17,780	130	6,240	330	18,562	325	18,281	147	7,056	360	20,250	335	18 843	145	6.960	350	19 687		
Red Bank,															70	2.800				
													160	6 720	80	3 200	140	0,720		
Reimerton,	65	2,600	40	1,400	142	2 262														
Rostraver,													350	12,250	265	10,600	307	12,280		
Saltsburg,	135	6,480	125	5.625			130	6,240	125	5.625			175	8 400	125	5,625				
	70	2.940	80	3 840	225	10.125	80	3 360	70	3,360	210	9.150	55	2.310	70	3 360	230	10 350		
Sandy Creek,	205	9,840	125	6,000	106	5.088	210	10 080	200	9.600	120	5 760	300	14.400	170	8,160	140	6.720		
Shafton,		9,000		7.040		9 900		11,100		8 800		12 210		12.300		9 240		13.500		
Southside,				16,880		32,280				17,850		37,180	80	3,840	100	4.800	110	5,280		
													90	4,320	90	4 320	100	4,800		
Standard,	320	17.920	200	8 800	270	19,550	290	16,260	260	10 720	340	25,580								
Stewardson Furnace,	175	4,200	90	4,050	190	3,800	175	4,200	80	3,600	200	4,000	195	4,680	90	4,050	200	4 000		
Turtle Creek, No. 3,			115	3,925																
	125	5,250	118	4,130	200	9,000														
Turtle Creek, No. 4,			158	6,154																
	150	6,300	170	5.950																
	125	5,625	182	6,916	300	14,025														
	160	6.720	180	6.300	305	11,620														
Waverly,	350	12,600	250	10,000	350	22.400	400	14,400	250	10.000	400	25 600	500	18,000	260	10 400	400	29 800		
Westmoreland,						9.600				7,140		7 560				7 728		8 400		
						7,500				4,410		5 376				4 800		5,880		

LIST OF ACCIDENTS *occurring in the Mines of the Second Bituminous Coal District of Pennsylvania, for the year ending December 31, 1881.*

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Jan. 8,	Joseph Harper,	25	Single,		Etua and Vesuvius,	Allegheny,		A driver. Had his chest bruised by being caught between the car and rib.
Feb. 25,	Charles Claude,							One leg broke and the thigh of the other considerably bruised.
Mar. 19,	John Mahony,	25	Married,					Bruised by fall of roof of entry while pushing car.
31,	Thomas Connel,	40	Married,					Collar bone broken by fall of coal while bearing in.
Apr. 10,	J. F. Shafer,	36	Married,		Soldier Run,	Jefferson,		Leg injured by fall of coal.
14,	Charles V. Vantine,	18	Single,		Etna and Vesuvius,	Allegheny,		Leg crushed between two cars while riding on full trip out of the mine.
19,	John Ditch,	25	Single,		Soldier Run,	Jefferson,		Fingers mashed while coupling cars.
June 9,	Oscar Swanson,	16	Single,		Shaft No. 2,	Westmoreland,	July 7,	Killed by fall of slate.
24,	William Wildman,		Single,		Southside,	Westmoreland,		Jaw broken.
25,	Robert Robertson,	20	Single,		Youghiogheny,	Westmoreland,		Leg broken by fall of slate.
25,	Ernest Doering,	28	Single,		Waverly,	Westmoreland,		Back crushed by fall of slate.
25,	Christ Frish Korn,	54	Married,		Cornell & Werlings,	Allegheny,		Leg broken.
27,	M. Hazlett,	30	Married,		Graver,	Allegheny,		Lost a finger.
July —,	Thomas Dixon,	45			Coal Run,	Westmoreland,		Leg broken while working in a rib.
26,	Thomas Forsyth,				Southside,	Westmoreland,		Leg broken.
Aug 23,	Peter Boker,		Married,		Coulter & Huff,	Westmoreland,		Foot crushed between cars.
Sept. 1,	Joseph Kirkpatriek,	25	Married,		Turtle Creek,	Allegheny,		Leg injured.
2,	Joseph Helley,	35	Married,	3	Shafton,	Westmoreland,		Fatally injured by a fall of slate while drawing rib.
20,	Joseph Bradigau,	17	Single,		Amieville,	Westmoreland,		Leg broken by fall of slate.
22,	Frank Ulbrauch,	55	Married,	4	Oak Hill No. 3,	Allegheny,		Injured by a fall of slate in a room newly turned, from which he died in about an hour.
26,	S. Myrtle,	12			Stewardson Furnace,	Armstrong,		Slightly injured by a fall of slate.
26,	Dennis McGee,	50	Single,		Alpsville,	Allegheny,		Foot so badly injured by the fall of slate that amputation was necessary.
27,	John King,	20	Single,		Shafton,	Westmoreland,		Had his thigh broken and skull fractured by a piece of slate which fell from between the prop and rib He died two days thereafter.
Oct. 7,	A. R. Aietz,	33	Married,		Saltsburg,	Westmoreland,		Injured by fall of slate.
8,	Nicholas Worner,		Married,		Greensburg,	Westmoreland,		Foot injured by fall of coal.
—,	Robert Latimore,	55	Married,		Shaft No. 1,	Westmoreland,		Leg broken by fall of slate.
20,	John Hale,	20	Single,		Hampton,	Allegheny,		Leg broken.
22,	Charles Nelson,				Southside,	Westmoreland,		Badly injured by fall of slate.

29,	William Cunningham,		Married,		Northside,	Westmoreland,	Leg broken by attempting to get on a moving trip after his light had blown out.
Nov. 2,	Bernhart Rholt,	39	Married,		Coal Mine,	Westmoreland,	Killed by a fall of slate.
3,	J. S. Hart,	36	Married,		Saltsburg,	Westmoreland,	Leg broken by a fall of slate.
21,	James Scott,	17	Single,		M. Graver,	Allegheny,	While on his way to work, about five o'clock in the morning, walked over a trestle and fell a distance of fifteen feet, breaking his thigh.
26,	Archibald McFall,	39	Married,		Beaver Bank,	Beaver,	Killed by fall of slate.
Dec. 2,	S. Deemer,		Married,		Shaft No. 1,	Westmoreland,	Leg broken by fall of slate.
3,	Thomas S. Kelr,	23	Married,		Belleview,	Allegheny,	Crushed between wagon and rib, breaking two of his ribs and otherwise injuring him.
10,	Frank Maloy,	17	Single,		Armstrong,	Westmoreland,	Leg broken.
15,	D. S. Wilcox,	33	Married,		Saltsburg,	Westmoreland,	Head and back injured by fall of slate.
16,	John E. Jones,	26	Married,		Ocean,	Westmoreland,	During the night of the 15th the roof of William Shaw's room caved in. On the morning of the 16th the parties accompanied Shaw into the room to see the fall, while there Joseph Shaw attempted to go over the fall with a naked light, to get his brother's tools that were in the face of the mine, while startling to go over, the gas which had accumulated ignited, burning all of them; Jones and Shaw suffered the worst.
16,	Joseph Shaw,	22	Married,		Ocean,	Westmoreland,	
16,	William Shaw,	18	Single,		Ocean,	Westmoreland,	
16,	S. Shaw,	16	Single,		Ocean,	Westmoreland,	
16,	William O'Donnell,	18	Single,		Ocean,	Westmoreland,	
16,	J. O'Donnell,	16	Single,		Ocean,	Westmoreland,	
18,	Arthur McNally,		Single,		Northside,	Westmoreland,	Head and shoulders injured.
20,	William Cousins,	13	Single,		Stewardson Furnace,	Armstrong,	Slightly injured by a fall of slate.
22,	William Harrington,	60	Married,		Robbins,	Allegheny,	Fatally injured by fall of horse-back.
29,	John Sloan,	18	Single,		Loyalhanna,	Westmoreland,	Collar bone broken.

THIRD DISTRICT.

To the Honorable A. K. DUNKEL, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: In compliance with the requirements of the act of Assembly approved the 18th day of April, 1877, I herewith present part of my annual report of the inspection of the mines of the Third Bituminous Coal District, comprising the counties of Clearfield, Cameron, Crawford, Clarion, Elk, Erie, Forest, Jefferson, Lawrence, Mercer, McKean, Venango, and Warren, for the year ending the 31st of December, 1881.

I was commissioned inspector of this district for four years, with term of office commencing May 15, 1881, and although only having been in charge of the district for eight months, I have collected the principal part of the statistics for the whole year. I have visited all the mines in the district that have been in active operation, and have given a brief description of their condition; also, made remarks on ventilation, all fatal accidents and needed amendments to our mining laws, &c. I have also given a series of tabulated forms showing coal production, number of fatal and non-fatal accidents, methods of ventilation, air-measurements, size of inlets and outlets, number of employés, &c., &c., all of which is given in another part of this report.

The number of fatal accidents for the year, eight, against eleven for the same counties in 1880. Non-fatal accidents, thirty-eight, against forty-one for 1880. Widows, four; in 1880, six. Orphans, eighteen; in 1880, nineteen.

In order to get reliable statistics of the coal production, &c., of this district, I issued the following circular to the operators, which has been returned from nearly all of them properly filled, giving the desired information:

Circular.

OFFICE OF THE INSPECTOR OF MINES OF THE
THIRD BITUMINOUS COAL DISTRICT OF PENNSYLVANIA,
WHEELER P. O., MERCER CO., PA., ... 188 . .

To . . . . . .

In issuing this circular, it is with the desire of making my report for 1881 as instructive and reliable in regard to the coal production, &c., of this district as is possible. Statistics given in this manner will be of incalculable value, not only to the public generally, but to mine operators as well; so it will rest with you whether the report will be instructive in this particular or not. Any data given by you shall be held strictly con-

fidential, and will only be given in the aggregate results of the district. You will confer a favor by filling up this blank, and return it to this office, no later than the 15th day of January, 1882:

Total number of tons mined of 2,000 lbs. each.
Average number of persons employed in mine.
Average number of persons employed outside.
Total average number of persons employed in 1881.
Average number of mules and horses employed.
What is the capacity of your mine, daily?
Average price paid per ton for mining.
Number of days worked in 1881.
Number of steam pumps used for drainage.
Number of steam engines employed for hauling and taking coal out of mine.
Number of boilers employed.
Number of coke ovens built in 1881.
Number of coke ovens in operation in 1881.
Number of mines operated by you in 1881.
Improvements made inside and outside during 1881.

Experience has taught us that in order to carry out the requirements of the ventilation law, with the least possible expense to the operator, we must have intelligent and practical miners as mining bosses. Then, are you in favor of an amendment to the mining law requiring all mining bosses who have not acted in that capacity for three years consecutively, to pass an examination before an examining board upon mining topics. Answer, yes or no.

Yours, very respectfully,

Thomas K. Adams,
Inspector.

The following is estimated—

Number of tons of coal for ninety-six (96) mines,	4,000,000
Average number of miners,	5,900
Average number of employés paid days' wages, (inside,)	507
Average number of employés, (outside,)	833
Total average number of employés,	7,240
Average number of mules,	573
Number of mines,	96
Average output of coal in tons per mine,	41,666+
Average price paid for mining alone,	61½ cents.
Average number of miners for each mine,	61.4+
Average number of other employés per mine, (nearly),	14

Average number of employés per each mine,	75.4+
Average number of days worked for 1881,	198
Average output in tons per miner for the year,	679 9/59
Average amount earned per each miner for the year,	$417 67+
Average amount earned per each miner per day,	$2 10+

CAUSES OF ACCIDENTS, &c.

Fatal.

By fall of roof,	5
By mine wagons,	1
By rope breaking on incline, while riding in an empty wagon,	1
By a mule,	1
Total,	8

Non-fatal.

By fall of roof,	7
By fall of coal,	12
By mine wagons,	12
By sundry causes,	7
Total,	38

Estimated amount of coal produced in tons per life lost,	500,000
Estimated amount of coal produced in tons per non-fatal accident,	105,263+

All of the above approximations have been given with much care, and can be relied upon as being nearly correct. With the many new mines which have been opened lately, and with the others that are in progress of opening now, the output of coal for this district for this year (1882) will certainly be increased largely over 1881, if the same business prosperity continues as at present. Although much has been done to improve the mines of the district, yet there remains a great deal to be accomplished before they will be in a satisfactory condition. Hoping that in the future I shall have the assistance of all mine officials in bringing the mines up to a proper standard, and have a faithful compliance with the requirements of the mining law,

I am yours, very respectfully,

THOMAS K. ADAMS,

Inspector of the Third Bituminous Coal District of Penn'a.

WHEELER, MERCER CO., *February 4, 1882.*

Remarks on fatal Accidents.

On August 15, Mathew Hodginson, miner, aged forty years, lost his life at Pacific mine, Clearfield county, operated by Whitehead & Co. He was killed by a mass of rock three feet long, two feet six inches wide, eight inches thick, falling from the roof. He was mining opposite the road and hearing the rock giving way he sprang to his feet and was making his escape, but happened to run under the falling mass. It caught him crushing his head against the wooden road rail, killing him instantly. If the prop that was securing the mass of rock had been set properly it could not have fallen, and the accident would have been prevented.

On August 16, James Nanncarron, miner, aged forty-two years, lost his life in Moshannon mine, No. 2, Clearfield county, and operated by the Moshannon Coal Company, while bearing-in, by a large stone (seven hundred pounds) falling from the roof. He had just cut through a clay vein or fault in the coal a few days previous to accident, at which the roof was badly broken and made several dangerous fissures, and instead of setting the props with their caps to cross the fractures, we found the caps parallel with the cracks, consequently, the treacherous stone dropped, killing him instantly.

On August 31, Charley Yantz, miner, aged sixteen years, was instantly killed at Clermont mine, operated by the Buffalo Coal Company, McKean county, while under-mining in No. 4 cross-entry. The boy was drawing pillars there, (rather dangerous work for boys,) but it was only at the urgent solicitations of the boy's father that the mining boss allowed him to do such work. The boy's father attends to the ventilating furnace of the mine, and as the pillars were located nearer the furnace than the advancing work of the mine, the father naturally desired that the boy should be near him, so as he could help and guard his only son, in a measure, against danger. The father went into the mine about three or four o'clock that morning, and went to his son's place and did a considerable amount of mining for him, waiting in the place until the boy came to work about six o'clock, the father after giving some directions to his son left to attend to the furnace, but had only been gone about one half hour when the news of his son's death reached him. The boy was lying upon the floor on his right side bearing-in when the mass of rock, seven feet six inches long, one foot thick, and sixteen inches wide, weighed down the mined coal, all falling upon the boy, crushing him to death.

On November 16, J. A. M. Philips, miner, aged fifteen years, was killed instantly in Red Bank mine operated by Alex. Reynolds & Sons, Clarion county, while working with his elder brother drawing pillars, by a mass of sandrock eight feet four inches long, three feet nine inches wide, eighteen inches thick, falling from the roof. Several props were set to secure this fatal stone but one of them not being set properly the boy thought he would knock it out and then re-set it again, thinking it of no use the way it was, which proved to be the most important one of all, and through the

inexperience of the boys the prop was knocked out costing the younger his life.

On November 30, William Perry, driver, aged forty-four years, lost his life while driving in the Decatur mine, operated by the Decatur Coal Company, Clearfield county. While this man was coming out of the mine, near the mouth of the drift, with a trip of five loaded wagons, he made the attempt to go over the cars, and, in the act, he fell down between them, several of them running over him, killing him almost instantly.

On December 9, Sebastian Seybert, miner, aged twenty-eight years, was killed almost instantly at Hardscrabble mine, operated by C. F. Hartwell, Clarion county. Seybert and two other miners got into an empty car at the foot of incline plane, just before daylight, to ride up. The cable that was attached to the empty car had been misplaced by some person the night before to the descending track. This mistake not being discovered, the descending load car and the ascending empty car were started on the same track, and, when the cars came together, the rope attached to the ascending car broke, and car containing Seybert, the other two men were thrown out, commenced to descend the plane at lightning speed, passing through the tipple-house at foot of incline plane, and down the dirt-chute, finally stopping in the flat-boat moored underneath. Seybert was dying when found, and terribly mangled. He lived but a few moments. The other two men that were in the car with him escaped with a few slight bruises.

On November 29, William McGinty, miner, aged thirty-eight years, was instantly killed in Chestnut Ridge new mine, Mercer county, operated by Filer, Westerman & Co. This is a new shaft, the entries have only been driven about twenty feet on east and west side of shaft. McGinty and another man were sinking a lodgment for water in the bottom of shaft, and, after firing a shot there, the two men had just descended the shaft again, and were standing in the east entry-road, about six feet from the shaft, when a very large rock fell upon McGinty from the roof, killing him instantly.

On January 27, James Fuller, driver, aged sixteen years, was killed at Morrisdale mines, Clearfield county, operated by R. B. Wigton & Son, by a mule running away with him.

MINE EXAMINATIONS IN MERCER COUNTY.

Lackawannock shaft is located at Greenfield, on the Oakland branch railroad, and operated by the Pierce Coal Company. James Pierce, superintendent, and Archy McIntyre, mining boss.

This is the deepest shaft in the county, having struck the coal at a depth of two hundred and twenty-five feet. It is sunk to the valuable "Sharon block-coal," three and one half feet thick, of good quality, very free from sulphur and other impurities, thereby insuring it a ready market for furnace and domestic purposes. The hoisting-shaft is very wet, owing to having struck a natural water-channel while sinking it, at a depth of one

hundred and twenty-five feet from surface. The channel has a depth of two inches nearly all around the shaft. It continues to pour forth its gallons of water per second, making the shaft unnecessarily wet, and very disagreeable for all those who have labor to perform at the bottom of it. Nothing has been done to stop the flow of water. A few dollars judiciously expended in this direction would be real economy.

The second six by eight feet shaft has been sunk during the year, and is divided off equally into two compartments. One used for a ventilating shaft, and the other as a traveling-way for the miners. This shaft is entirely too small, and ought not to have been of less dimensions than eight feet by twelve when it was calculated to serve the purposes of a ventilating-shaft and traveling-way.

The workings at this mine are laid out on the single entry system. With all its disadvantages this seems to be the prevailing one in the block coal regions. No other system could be adopted advantageously here, especially where the coal seam is narrow and has a serpentine course, such as the seam has at this point. The main entries are driven in the bottom of the swamps, which is usually on the face of the coal. Cross entries are driven at right angles to main entries on end of coal for the purpose of opening out rooms. Air-courses are driven parallel with main entries, leaving a pillar between them from eighteen to twenty-four feet wide, "cut throughs" about every twenty-five yards. Rooms driven twenty-four feet wide, leaving a rib of coal between rooms from nine to twelve feet wide. A larger tonnage would be obtained by increasing the size of pillars and ribs.

The mine is ventilated by exhaust steam, (a very defective ventilating power.) Drainage effected by steam pumps. Taking the mine as a whole, it is in fair condition, and as Mr. McIntyre is an intelligent and experienced mining boss, he ought to have no difficulty in keeping this mine up to the requirements of the mining law.

Oakland Shaft, No. 3.

This shaft is located in Hickory township, and operated by Pierce & Scott. Walter Pierce, superintendent. Robert Oakes, mining boss.

The workings in this mine are not laid out on any approved system. This is caused mainly by having so many local dips to contend with. No regular swamps. The mine produces a large quantity of water. Coal is of an inferior quality, and everywhere overlaid with a hard sand-stone roof. The workings are connected with those of the Westerman mine. A traveling-way is maintained between the two shafts. Found a few places poorly ventilated, but have been remedied since my visit. Mine will be exhausted in a few months.

Wise Shaft.

This shaft is located in Hickory township, and operated by the Snyder Coal Company. Enoch Filer, superintendent. Henry Filer, mining boss.

This mine is in good condition. Ventilation and drainage up to the requirements of the law. Much care is taken by the mining boss in conduct-

ing the ventilating current to the extreme corners of the mine, thereby insuring the miner a sufficient quantity of pure air to breathe. Found all of the ventilating arrangements in good order; hauling roads dry and well ballasted, and all of the details of the mine in good shape. Ventilation produced by exhaust steam and a Murphy fan four feet in diameter; but the fan's efficiency has been and is greatly destroyed by having been placed at the bottom of the shaft instead of being placed at the top. Drainage effected by steam pumps. Workings laid out on the single entry system. Working a block coal of from three to four feet high and of excellent quality. Some of the workings are now on the return, consequently, the mine will soon be exhausted.

Rankin Shaft.

This shaft is located near Sharon, Hickory township, and operated by John F. Filer & Co. John F. Filer, superintendent; Enoch Filer, junior, mining boss.

This mine is not in good condition. Some parts of mine poorly ventilated, and drainage somewhat defective, however, some improvements have been accomplished in this direction since my visit. Ventilation produced by exhaust steam, and drainage effected by steam pumps. Mine worked on single entry system, and have a good quality of block coal, from three to four feet thick.

Pacific Slope.

The opening is a slope, located near Sharon, Hickory township, and operated by Dunham, Roberts & Co. Warren Dunham, manager.

This mine is in a very bad condition, and has been worked without any apparent system, however, they have had to overcome many difficulties, such as local dips of the coal seam; coal thin, and of poor quality; also a large number of "horsebacks," &c. I found mine poorly ventilated, drainage defective, and hauling roads wet and muddy. Ventilation product by small furnace, but has not much effective power, owing to the long distance the air has to travel through narrow air-courses. Drainage effected by steam pumps.

Hickory Shaft.

This shaft is located in Hickory township, and operated by J. J. Spearman & Co. Enoch Filer, superintendent; James Beveridge, mining boss.

This mine has been a very bad one to manage, owing to the shaft being sunk near one of the extreme ends of the company's coal lease, necessitating the workings to be driven in one direction; also the workings or main entries have dipped all along their course, causing a great deal of trouble and expense to pump water, also for haulage. The basin of coal has been very narrow, at some points not exceeding twenty-five to thirty yards in width; but the coal is of good quality and commands a high price in the market, which is one of the best levers to overcome difficulties in mining we

know of. The coal is from three to four feet thick, and has a covering or roof of sand-rock. Mine is laid out on the single entry system. There is not as brisk a current of air circulating through the mine as we desire, but the workings will not advance much further and will soon be on the return, which will insure better ventilation for the miners.

Stoneboro' Mine.

This opening is a slope located at Stoneboro', and operated by the Mercer Iron and Coal Company. Benjamin Esgar, superintendent and mining boss.

The slope is eighteen hundred feet long, single track. The coal is four and a half feet high, soft, and impure—much sulphur in the coal. The roof of the mine is soapstone, and has a soft fireclay floor. The mine produces a large quantity of carbonic acid gas, (black damp,) especially from the old abandoned workings. These places ought to be securely closed when exhausted, so that this deleterious gas cannot escape, to mix and foul the ventilating current before it reaches the miners. The drainage is very defective—roads wet and muddy. However, improvements in this direction will be accomplished so soon as the company has sunk a new slope to the dip of this vein, some twenty feet lower than the workings in this mine. When the workings are connected, we expect to have improvements made both in drainage and ventilation. The workings are laid out on the square system, or square work, as applied in this district. Main entries are driven on face of coal, with air-courses parallel with them. Cross-entries are driven at right angles to main entries; then when the cross-entries are driven a certain distance, entries or air-courses are driven at right angles to them, for the purpose of connecting the cross-entries for ventilation, &c.

Jackson Centre Mine.

This is a drift opening, located at Jackson Centre, and operated by the Jackson Coal Company. Superintendent, John I. Gordon; mining boss, John Allen.

The mine is operated upon a very small scale at present, owing, in a large measure, to having encountered so many local dips, thereby throwing the coal under water, which cannot be any longer drained by natural means, and will have to employ steam pumps if they intend taking out the balance of their coal. The coal is about four and a half feet high, somewhat mixed with sulphur. Ventilation assisted by furnace, and drainage by natural means. The mine, as a whole, is in fair condition.

Pardoe Mine.

This is a drift opening, located at Pardoe, and operated by the Mercer Mining and Manufacturing Company. Richard Lewis, superintendent; J. S. Humphreys, mining boss.

This mine has been running for a number of years, producing a large amount of coal, and is still quite extensive. A locomotive is employed, which hauls the coal about one mile from a siding or "turn-out," in close

proximity to the workings. It hauls about forty cars, or mine wagons, at a trip. This is quite a saving over mule power. The vein is about five feet high, and somewhat sulphury. Workings laid out on the single-entry system. Ventilation produced by a forcing fan eight feet in diameter, which works admirably well. The locomotive tunnel is used as the return air-way. Found the workings fairly ventilated, but had not a sufficient quantity of air in locomotive tunnel to dilute the gases sufficiently which were thrown off so copiously from the locomotive by the combustion of the coal.

A good, substantial traveling-way has been made to this mine lately, which serves for the purpose of ingress and egress for the workingmen. The drainage is very defective, and hope to see the mine managers making some improvements in this direction.

Egbert Mine.

This is a slope opening, located near Jackson Centre, and operated by Filer & Co. Enoch Filer, superintendent; William Maxwell, mining boss.

The mine is sunk to the Upper Mercer vein, is about five feet thick, and somewhat impure from sulphur. The mining operations are very limited at present, (only employing ten miners,) but after the drainage of the mine and the outside arrangements for hoisting the coal are completed, the workings will soon be in such a shape as to enable the company to make large shipments of coal.

MINES IN LAWRENCE COUNTY.

Edenburg Mine.

This mine is located five miles west of New Castle, and operated by the Mahoning Valley Iron Company. Henry Bonnell, Superintendent, James Warner, mining boss.

Two openings, main drift and upcast air shaft. Coal conveyed down a short incline plane from mouth of drift to tipple at railroad. Ventilation produced by a furnace. Found ventilating current badly distributed, with but few doors to guide it to the workings. Dimensions of ventilating shaft six by six feet and fifty feet deep. Drainage somewhat defective owing in a large measure to the soft nature of mine floor. Water raised from the mine by means of two syphon pipes, eleven hundred and thirty feet long. System of working single entry, pillar and room. Seam of coal contains sulphur and by general appearance seems to be of an inferior quality. The coal also contains a soft dirt seam about ten inches thick, which is turned to advantage by the miners as a bearing-in. The top coal is twenty-two inches thick, bottom twenty-six inches. Both benches seem to be of the same quality of coal. The roof is limestone. Coal used for the company's mills at Youngstown, Ohio.

Davidson Mine.

This is a drift opening located at Wampum and operated by W. B. Enos and Company. Superintendent, W. B. Enos; Edward Cook, mining boss.

The mine is opened in the Darlington coal two feet nine inches thick. By all appearances the mine has been badly managed in the first stage of the workings. At some points in the mine on the main entries the pillars are not than eighteen inches thick, which causes a great deal of expense and trouble now to keep the hauling roads in repair. The coal is conveyed by means of an incline plane of considerable length from the mouth of drift to bottom of hill, thence taken by mule power to chutes on E. & P. R. R. a distance of one half mile. Ventilation is produced by natural means. A small furnace has been in use for this purpose in days gone by but should judge that it had been of little importance as a ventilating power, owing to its being too small, and placed in a bad location. The mine is in fair condition, taking into consideration the many disadvantages the present managers have had to contend with.

Welsh Mine

Is located near Wampum, and operated by the Wampum Iron Company, Limited. Superintendent, F. H. Oliphant; Robert Crawford, mining boss.

Two openings, (drifts.) Working the Darlington vein, two feet six inches high. Coal taken down a graded road, two hundred yards long, from mouth of drift to top of incline plane, which is three hundred feet long; then taken to Wampum in railroad cars, and is there prepared and coked for the use of the company's furnace. Ventilation and drainage produced by natural means. Mine in fair condition.

Clinton Mine.

Located near Clinton, and operated by the Clinton Coal Company. Charles Harmony, superintendent; John Craig, mining boss.

This is a drift opening, and working the Darlington vein, two feet eight inches thick. The coal is unloaded from mine wagons, near mouth of drift, over chutes, into cars holding about four tons, and run over a graded road three fourths of a mile to the chutes of the E. & P. R. R. Mine has been running very unsteady lately. Several openings to day in connection with the mine. Ventilation assisted by furnace. On my arrival in the neighborhood, the wood-work of the furnace shaft and stack caught fire and burned down. Ventilation fair, but some of the roads muddy. However, improvements are being made in this direction. Mine worked upon the single entry plan.

Beaver Mine.

Located near Clinton, and operated by Lee & Patterson. H. K. Hartsuff, superintendent; Charles Price, mining boss.

This is a drift opening; also, a good ventilating shaft, eight by ten feet, and one hundred and fifteen feet deep. Coal conveyed to chutes on the

E. & P. R. R. in the same manner and over the same graded road as the Clinton mine. The mines are near each other and work the same vein of coal. Coal in this mine is three feet high, and usually shipped to the Erie market. Mine running steady and doing a good business at time of visit. Ventilation assisted by exhaust steam from a Blake steam pump, which is used for draining the mine. They also had a small fire upon a few grate bars at bottom of upcast shaft; and their fire being close to coal pillar, I advised them to abandon their scientific arrangement, for fear that it might work different results than they expected from it, and recommended the erection of a substantial ventilating fan. Found ventilation not up to the requirements of the law in several parts of the mine. Drainage fair and roads in good order, for the nature of the mine floor they have to contend with. Workings laid out with a view to working on the single entry plan. This is the oldest and most extensive mine in the county.

VENANGO COUNTY.

Maple Grove Mine.

This is a drift opening, located one mile west of Raymilton, Venango county. Owned and operated by S. P. McCalmont. Charles A. McKenney, superintendent; Mike Namarrow, mining boss.

It is about twenty years since this mine was first opened, but owing to the coal being very impure, or containing a high percentage of sulphur, the mine has been run very unsteady, and was doing a small business at time of visit. The coal is three feet ten inches thick, and workings laid out on the single entry system. Have a good ventilating furnace. Drainage produced by natural means. Mine, as a whole, in fair condition.

McKEAN COUNTY.

Clermont Mine.

Operated by the Buffalo Coal Company, and located at Clermont, McKean county. Superintendent, James Pollock; mining boss, Robert Dick.

This is a drift opening. They are working the Clermont coal bed. Coal two feet six inches high, somewhat impure, containing slate binders and high percentage of sulphur. However, the mine is running steady and making large shipments of coal. It is used for steam purposes, and principally shipped to the Buffalo market. Works partially worked on the double-heading system. Rooms driven two in a breast, twenty-nine feet wide. Rooms, pillars, or ribs, twenty-four feet wide, and where the rooms are driven to their boundary line, four yards of the ribs on each side of the set of rooms are then attacked, and withdrawn. Ventilation is produced by furnace and drainage by natural means. Ventilation somewhat defective.

The Instanter mine is operated also by the same company, and located about three miles south-east of the Clermont mine. At this mine they are working the Alton upper vein. Coal about three feet thiek, and worked on the double-heading system. Ventilation produced by furnace. Drain-

age by natural means. The mines are not in as good condition as they ought to be, but the present managers are in favor of making all necessary improvements, in order to carry out the true intent of the mining law.

MINES IN JEFFERSON COUNTY.

Pancoast Mine.

Operated by Hiram Goodwell and Frank Williams. Located at Pancoast. Superintendent, J. C. Baker; mining boss, Henry Williams.

Three openings, main drift, water-course, and a ventilating shaft, four by five feet, thirty feet deep; stack, thirty feet. Mining the Lower Freeport vein, which is seven feet thick, five feet of which is mined and sent to market for steam and gas purposes. Two feet of the vein are left up to form a roof, as a bed of soft fire-clay, fifteen inches thick, rests upon top of coal. There is also another thin seam of coal on top of the fire-clay. System of working, single entry. Some of workings now on the return or drawing some of the pillars. Coal let down an incline plane two hundred feet long from mouth of drift to chutes on railroad. Taking the mine as a whole, it is in fair condition.

Washington Mine.

Operated by Frank Williams, and located at Pancoast, on the Low Grade branch of Allegheny Valley railroad. J. C. Baker, superintendent; Henry Williams, mining boss.

Three openings, including ventilating shaft. Main opening a drift. Working the Lower Freeport vein. Height of marketable coal, four feet. Several inches of impure coal not taken down in rooms. Coal is used for gas and steam purposes. Shipped principally to Buffalo. Coal let down an incline plane seven hundred feet long to chutes. Workings on the single entry system. Mine ventilated by furnace, and drainage by natural means. Mine in good order generally.

Diamond Mine.

Operated by Elias Rodgers, and located Reynoldsville. Superintendent H. Nicholson; mining boss, W. Grimes.

They are mining the Lower Freeport vein. Coal about five feet high, and run down an incline plane nine hundred feet long to chutes. The workings are all on the return, and mine will soon be exhausted. Mine in poor condition.

Hamilton Mine.

Located at Reynoldsville, and operated by the Hamilton Coal Company. Superintendent A. V. Armstrong; John Louther, mining boss.

This is a drift-opening, with two other openings for drainage and an air-shaft. The seam of coal in this mine is nearly eight feet thick, but only consider five feet of it marketable, the other three feet being left in the mine. Coal is let down an incline plane three hundred feet long to tipple, and, when they have means of transportation, can make large shipments

of coal. The workings are laid out partially upon the double-heading system. Four headings are being driven at present. Headings are driven eight feet wide and five feet high, with twenty-one foot pillars. Width of rooms twenty-one feet, with ribs four yards wide. Ventilation produced by furnace, which is rather small for the size of this mine. However, the ventilation was fair. Mine drained by natural means. Mining boss very much in favor of conducting his mine in accordance with the requirement of ventilation law.

Soldier Run Mine.

Operated by Powers, Brown & Co., and located at Reynoldsville. Superintendent, James A. Powers; mining boss, Richard Smith.

Three openings, inclusive of ventilating-shaft. Working the Lower Freeport vein, seven feet thick, five feet of which is being mined and prepared for market. Coal run down an incline plane one hundred and seventy-five feet long, and on an angle of 45° from mouth of drift to tipple. Have erected an Upton's tipple, which facilitates the unloading of coal greatly. See my predecessor's report for full description of this tipple. They have also thirty-one coke ovens in operation, using the slack of mine entirely for charging ovens, and producing an excellent quality of coke.

Workings laid out on the double-heading system, and found mine well up to the requirements of the ventilation law in every particular. Back-headings are kept in line with main-headings, so as "cut throughs" can be made when necessary, and thereby insuring a bracing atmosphere for the men driving the narrow work. The details of mine, such as doors, stopping, roads, drainage, &c., are kept well in order by the industry and vigilance of the mining boss. Mine ventilated by furnace, and drainage effected by natural means. This mine will compare favorably with the best of the mines in my district.

MINES IN CLARION COUNTY.

Fairmount Mines, Nos. 2 and 4.

Operated by the Fairmount Coal Company, and located at Fairmount, on the low-grade railroad. Superintendent, J. M. Brinker; mining boss, R. Henry.

No. 4 drift not working at time of visit. The No. 2 running, and making a fair output.

Two openings for No. 2, and working the Lower Freeport coal which is from five to seven feet thick, and very free from impurities. They haul the coal by mules from mouth of drift to the top of incline plane, a distance of two thousand five hundred and forty feet. Coal principally shipped to Buffalo, and used for gas, steam, and coke purposes. Company have in operation at mine, thirty coke ovens, principally using slack, and making a good quality of coke.

Ventilation produced by natural means, and as a sequence find it somewhat defective. Drainage by natural means. The roof in some parts of

mines soft and shelly, causing a great deal of trouble in advancing the rooms or workings.

Pine Run Mine.

This is a drift opening, and operated by the Pine Run Coal Company. Superintendent, I. Mitchell; mining boss, William Jent.

Mine located between East Brady and Phillipsburg, on the Allegheny Valley railroad. A drift opening, and mining the Catfish vein three feet three inches thick, with six inches impure coal next to roof, which is left in mine.

Ventilation assisted by a fire-lamp at bottom of upcast shaft, which has very little heating surface for ventilating purposes. At time of visit, found ventilation defective, but I am informed has been improved since visit. Drainage by natural means. Roads dry, and in fair condition.

Hardscrabble Mine

Is a drift opening, located at East Brady, on the Allegheny Valley railroad, and operated by C. F. Hartwell. C. F. Hartwell, superintendent; George Henry, mining boss.

This mine is running steady, and working a four foot vein of coal. Ribs of slate running through the coal, making it very impure. Used for steam purposes, and principally shipped to the eastern market. Use an incline plane four hundred feet long, to run the coal down to chutes. System of working, single entry. No artificial means for ventilating purposes applied, and found ventilation very defective. Drainage by natural means. Roads dry, and in fair condition generally.

New Catfish Mine.

Operated by the Pittsburgh Coal and Mining Company, and located at Catfish, on the Allegheny Valley railroad. L. N. Singley, superintendent; J. L. Rankin, mining boss.

Drift opening, and working a seam of coal three feet thick. Coal let down to tipple at railroad by means of an incline plane. This company is busy making preparations to put in their mine a Lechnor coal cutting machine, to be run by compressed air by an Allison air compressor, for the purpose of undercutting the coal. System of working, single entry. Natural ventilation. Found air not well distributed. Drainage good.

Lower Hillville Mine

Is a drift opening, located at Lower Hillville, on the Allegheny Valley railroad, and operated by the Pittsburgh Coal and Mining Company. L. N. Singley, Superintendent; mining boss. John Manley.

Three openings. Mine worked on the single entry plan, and working a seam of coal three feet thick. Natural ventilation, but has a small furnace which cannot be used to advantage, owing to its having been badly located on side of mountain. Ventilation defective. Drainage by natural means, and mine fairly drained.

Church Hill Mine.

Operated by the Church Hill Coal Company, and located at Monterey, on the Allegheny Valley railroad. George Horner, manager.

Three openings, a drift, and two air shafts. Height of coal about three feet. Ventilation assisted by a fire-lamp at bottom of one of the air-shafts. Air defective, but are busy at work making improvement in this direction. Drained by natural means. Drainage good.

Mineral Ridge Mine.

This is a drift opening, located at Monterey, on the Allegheny Valley railroad, and operated by F. J. Skidmore. Superintendent, C. W. H. Eicke; mining boss, John Bridgner.

Four openings. Use an incline plane eight hundred and forty-five feet long, on an angle of forty-two degrees. Height of coal three feet, and worked on single entry plan. Ventilation produced by furnace. Natural drainage. The mine, as a whole, is in fair condition.

Red Bank Furnace Mine.

This is a drift opening, located at Red Bank, on the Allegheny Valley railroad, and operated by Alex. Reynolds & Son. David Reynolds, superintendent. Mining boss, I. A. Clark.

Two openings. The mine is running steady and producing about one hundred tons of coal daily. The coal is used for the furnace after being washed, prepared, and coked. Number of coke ovens, forty-two. The Beam door for coke ovens, patented July 19, 1881, has been erected at twelve of the new ovens. The new door is made of an iron plate, having air-holes and inwardly-projecting flanges, upon which are secured the inside walls of fire-clay, leaving an open space or air-chamber between the outer iron plate or wall and inside fire-clay walls. The air-chamber between these walls effectually protects the outer plate or casing against the effects of the heat, which is most intense in the lower part of the oven, and the inside wall being of fire-clay will last a long time, and when finally burned out or otherwise destroyed, can readily be replaced at small expense. This door is a great saving both in labor and expense over the old method of building up the mouth of the oven door with fire-brick. The door is hung upon a door-frame made of iron, and is at such an angle that when the door is opened it will fall back and be out of the way when drawing the coke.

The coal at the mine is three feet, six inches. Workings laid out on the single entry system. Ventilated by natural means. Drainage by natural means, and good.

MINES IN CLEARFIELD COUNTY.

Rochester Mine.

Is located near Du Bois, on the low grade railroad, and operated by Bell, Lewis & Yates. Arthur J. McHugh, superintendent. Mining boss, H. S. Bartlett.

of small coal, of which a great part had to be dumped and wasted. Although the slack coal of this mine is not very dirty, yet it was deemed necessary to crush and prepare the coal previous to sending it to the ovens. As investigations of the different machines in use for separating coal from its impurities by the general manager of the works, Mr. F. A. Field, resulted in a decision in favor of the Stein washer, it being the most improved and in more general use than any other style. The annexed description and plates of the machinery were furnished for publication by Mr. Stein, at my request.

Plates I and II represent, respectively, the building and general arrangement of the machinery and the washing apparatus both in a vertical section. The building is 37 by 24 feet, and about 50 feet high, including a foot of wall almost full out below the floor. It is set along the main track and close to the coal chutes, in order to save all unnecessary handling of the coal. Two coal bins 12 by 12.5 feet inside and 15 feet high, holding about 75 tons each, complete the structure. Owing to the great height, between the top of the coke ovens and the slack hopper H, it became necessary to raise the first floor about 8 feet, an equal length of elevators and a better working thereof being thus secured. The arrangement of the machinery will be easily understood from Plate I. A is the large screen of the coal chute, over which the mine cars are dumped. Lumps and nut coal are sent to the market, while the small coal, before it can pass through the meshes of the screen, into the large hopper H. By means of the electric lever E the material is taken up and delivered upon the chute C. The latter is formed of a screen about ¾ inch mesh, to let the particles already small enough pass directly into the washer or separator. All larger pieces go to the crusher C to be restored to the required size. The crushing of the coal, is of great importance for the separation and for the manufacture of coke. The smaller the pieces the more impurities are loosened and removed, and the harder and richer the quality of coke can be made. Two

Four openings, inclusive of ventilating shaft. Two drifts run parallel with each other to first station or "turn-out," in mine. One is used entirely for taking into the mine the empty wagons, and the other for bringing out the loaded ones. They are working the Lower Freeport vein, seven feet thick, five feet six inches of which are being mined and sent to market. The top, eighteen inches, is considered too impure, and is left in the mine. The mine is worked on the double-heading system. Have seventeen headings driving at present. Miners employed, about three hundred and twenty-five, and produce about twelve hundred tons of coal daily, which is principally used for steam and gas purposes. At time of regular visit found ventilation very defective, but an air-shaft has been sunk since then at the extreme end of the workings; also, the furnace has been taken down and rebuilt, which has improved the air considerably.

This company has erected a coking plant of fifty-six Bee-hive coke ovens and a set of the "Stutz" coal washing machiney, to get rid of their surplus of small coal, of which a great part had to be dumped and wasted. Although the slack coal of this mine is not very dirty, yet it was deemed necessary to crush and prepare the coal previous to sending it to the ovens. An investigation of the different machines in use for separating coal from its impurities by the general manager of the works, Mr. F. A. Bell, resulted in a decision in favor of the Stutz washer, it being the most improved and in more general use than any other style. The annexed description and plates of the machinery were furnished for publication by Mr. Stutz, M. E., at my request:

Plates I and II represent, respectively, the building and general arrangement of the machinery and the washing apparatus, both in a vertical section. The building is 37 by 28 feet, and about 30 feet high, including 8 feet of wall above rail and below the floor. It is set along the main track and close to the coal chutes, in order to save all unnecessary handling of the coal. Two coal-bins 14 by 12.5 feet inside and 15 feet high, holding about 70 tons each, complete the structure. Owing to the great height, between the top of the coke ovens and the slack-hopper H, it became necessary to raise the first floor about 8 feet, an equal length of elevators, and a better working thereof being thus assured. The arrangement of the machinery will be easily understood from Plate I. K is the large screen of the coal chute, over which the mine cars are dumped. Lumps and nut coal are sent to the market, while the small coal, below $\frac{3}{4}$ inch in size, passes through the meshes of the screen, into the large hopper H. By means of the elevator E, the material is taken up and delivered upon the chute *c*. The latter is formed of a screen about $\frac{5}{16}$ inch mesh, to let the particles already small enough pass directly into the washer or separator. All larger pieces go to the crusher C, to be reduced to the required size. The crushing of the coal is of great importance for the separation and for the manufacture of coke, because the smaller the pieces the more impurities are loosened and eliminated, and the harder and closer the quality of coke can be made. Two

rolls of 20 inches diameter and 4 feet long, set on east-iron housings, form the crusher. By delivering the fine material directly into the washer, the crusher is greatly relieved and much unnecessary power saved. The separator S stands directly below the crusher, and has two sieves, 3 by 4 feet 9 inches in size, or together 28.5 square feet of sieve surface. It is formed of a strong wooden box, divided into four compartements A B, containing respectively the sieves S and plungers P, Plate II. By means of the latter and the cam C, the water taken into the machine by the pipe *g*, is forced through the valve openings *v*, to lift up the layer of material upon the sieve. The action of the water-current can be easily regulated, by giving more or less stroke to the cam, which is done by the hand-wheel *h*. A spring buffer F limits the downward stroke of the plunger. The object of the valves *v* is to prevent the filtration and back-suction of the water during the upward stroke of the plunger, and thus save the very small coal, which otherwise will pass through the meshes of the sieve. The arrangement of the curved partition *n* below the sieve is a decided improvement, and has the following important advantages:

First. Great saving of motive power in the working of the washers. The body of the water in the box A being divided by the partition *n*, the inertia of the small part, above the latter, has only to be overcome.

Second. The current of the water, produced by the plunger P, not only lifts up the material upon the sieve, to effect the separation, but also moves the separated parts, coal and impurities, towards the delivery bridge *m* and valve H, respectively. This is especially valuable since the continuous and regular separation of slack, containing heavy impurities, such as iron pyrites, fire-clay, etc., is greatly facilitated.

Third. The forming of a special receptacle, below the partition, allows the fine particles of sulphur and slate, falling through the meshes of the sieve, to settle. Thus, the clean water is not mixed with the slimy sediments, and the latter are not forced back again into the material.

Fourth. Great economy in water. In the older machines, the separated coal is floated out of the apparatus, at the expense of an enormous volume of water, yet the impurities have to be removed from the sieve by the shovel, thus interrupting the working of the machine, and making it intermittent.

The operation of this machine is as follows: The material is brought upon the sieve from the bin J, by passing below the gate *b*. At each fall of the plunger, a certain volume of fresh water is forced through the valves *v* into the box A, causing a sudden rise of the water level and the layer of the material. The separation being carried out by the difference in the specific gravity of coal, slate, iron pyrites, etc., the movement given to the water forces the coal, as the lighter part, on top and out over the bridge *m*, while the slate and pyrites, etc., settle upon the sieve, and reach the outside through the valve H and slate-chamber N. Before leaving the washer, the mixture of coal and water passes over a drying-sieve *i*, leading the coal

to the elevator buckets, while the water passes through the meshes and flows out below. The use of a differential cam to produce the current of the water allows the material, after each stroke, the necessary time to deposit according to gravity. From the washer, the clean coal is carried into the bins G, by means of a second elevator F, and thence, by the larry L, to the coke-ovens.

The capacity of the machinery is two hundred and fifty tons per day of ten hours. About eight per cent. of impurities are washed out. A six-gallons pump, (per stroke,) making from thirty to forty strokes per minute, furnishes all the water for the working of the washers, and the coking-ovens, and boiler. The cost of washing is about two and one half cents per ton of coal, and is very low. The machinery does its work well, if run regularly, but it happens frequently during the day that the coal comes out of the mine faster than the machinery is able to handle, at its ordinary speed, and, in order to prevent the filling up of the hopper H, the speed is increased, and more coal fed into the washers than can be properly washed.

The coke-ovens have twelve feet in diameter, by six feet six inches high, and are set in double line. They are charged with one hundred and fifty to one hundred and sixty bushels of coal. Forty-eight hours coke, of an excellent quality, is made, and the enterprise is a full success.

Hildrup Mine.

A drift opening, and operated by the Sandy Lick Gas Coal and Coke Company, Limited. F. S. Hay superintendent; B. O. Hagan mining boss.

Three openings, inclusive of furnace shaft. They are working the Lower Freeport vein, six and one half feet thick, including four inches of "boney," or bone coal, coal used for gas and steam purposes. Mine not running steady owing to a lack of railroad cars to transport their coal to market. Workings are laid out on the double-heading system. Headings driven eight feet wide six and a half feet high. Heading-pillars twenty-four feet wide. Cross-headings turned at right to main-heading. Length of main-heading two thousand three hundred feet. It dipped from mouth of drift for a considerable distance, causing rather a heavy grade for a main hauling road by mule power and adding largely to the expense of hauling.

Ventilation assisted by furnace, and drainage by natural means. Taking the mine as a whole it is in good condition.

Sandy Lick Mine.

This mine is located near DuBois, on the Low Grade railroad, and operated by the Sandy Lick Gas Coal and Coke Company, Limited. Superintendent, F. S. Hay; mining boss, B. O. Hagan.

Two openings—a drift and furnace shaft. Are working the Lower Freeport vein of coal, about six feet thick. Coal used for gas and steam purposes. Mine running very unsteady, owing to scarcity of cars.

The mine is supposed to be worked on the single-entry system, but the plan of working is somewhat irregular. We do not mean to attribute this

irregularity in the plan of working as being the fault or inexperience of the mine managers, as nature itself has been the real cause, through the means of a large fault, cutting off the coal in the direction of their main-heading, the intended course of which had to be changed several times to keep it from running against the fault. At one point the main hauling road had to be taken through a room which looks to be wide, but on examination did not find it dangerous, but to guard against the possibilities of the future, I ordered cribbing on each side of the road where it appeared too wide.

Ventilation assisted by furnace, and drainage by a steam-pump. Taking into consideration the difficulties that have had to be overcome, consider the mine in fair condition.

Ocean Mine.

This is a drift opening, located on the Goss Run Branch railroad, near Houtzdale, and operated by Whitehead & Co. A. G. Spears, superintendent; mining boss, Hugh Rolland.

Two main openings and several ventilating shafts. The mine is very extensive, and gives employment to 240 miners. Daily production about 740 tons. Mine running at three fourths time at time of visit, owing to scarcity of cars to transport their coal to market. The seam of coal is 4′ 2″ thick, and used for steam purposes. The workings are partially laid out on the double and single-heading system. Ventilating arrangements are good. Have a substantial ventilating furnace. Drainage produced by natural means. For such an extensive mine it is in good condition, which speaks volumes for the present managers, who seem to take special delight in having their mine up to the requirements of the ventilation law.

Atlantic Mine.

This is a drift opening located near Houtzdale, and operated by Whitehead & Co. A. G. Spears, superintendent; Robert Whitehead, mining boss.

This mine not having sufficient fall to allow natural drainage, they have been greatly troubled with water. Have had to drive a tunnel on top of coal for about 1,000 feet until the coal began to raise a sufficient distance to admit of natural drainage, but most of the workings are still under water, which will be a great source of expense, however, as the superintendent is experienced in mining affairs, we have no doubt but what he will be equal to the emergency. The workings are partially laid out on the double and single heading system. Ventilation assisted by a small furnace, but a large and substantial furnace will be built as soon as the other arrangements are completed. Ventilation good. Drainage by natural means at present.

Goss Run Mine.

This is a drift opening located on the Goss Run Branch railroad, near Houtzdale, and operated by Berwind, White & Co. Peter Cameron, superintendent; William Pollock, mining boss.

This mine has several openings, and has a daily production of about 550 tons when running. The seam of coal is 6′ thick, five feet of which is being mined and sent to market, and is used for the generation of steam. Mine only working about one half time, owing to a scarcity of railroad cars. Workings laid out on the double-heading system. Mine ventilated by a furnace, and the air well distributed to face of workings. Drainage produced by natural means. Mine in very good condition.

Webster Mines, A and B.

Have several openings for each mine, and located near Houtzdale, on the Goss Run railroad branch, and operated by the Webster Coal Company. Superintendent, Charles Palmer; mining boss, Philip Hartman.

These mines are producing daily, when running, between seven and eight hundred tons of coal, which is used for steam purposes. Vein of coal about five feet thick. This includes eight inches of impure coal, which is left in the mine. Workings partially worked on the double-heading system. The mines are ventilated by a furnace in each, but the air not very well distributed to face of workings. The mining boss is trying, to the best of his ability, to have all defects remedied. Mine drained naturally.

Excelsior Mine.

This drift opening is located on the Goss Run Railroad Branch, near Houtzdale, and operated by Fisher Bros. & Miller, with Thomas Richards as mine manager.

There are three openings, inclusive of air-shaft. The mine is like the other mines in this region, running very unsteady, owing to a scarcity of railroad cars to transport their coal to market. Miners employed here, one hundred and fifty-eight, and producing about six hundred tons of coal daily, which is being used for steam purposes. This mine is quite extensive, and face of working is a long way from mouth of drift. The ventilation is assisted by a substantial furnace, but found air very defective, caused, in a large measure, by the air having such a long distance to travel, but were busy making preparations to have this defect remedied. Drainage by natural means.

Sterling Mines, Nos. 1 and 2.

These are drift openings, located near Houtzdale, and operated by Robert Hare, Powell & Co. Superintendent, James Campbell. Mining bosses, Thomas Major and Daniel H. Campbell.

There are several openings at these mines, and employ about four hundred miners, giving a daily output of coal of about one thousand six hundred tons. The vein of coal is about five feet thick, of good quality, at No. 1 mine, which is the most extensive. A locomotive is used to haul the coal from the first station in both drifts that is operated in connection with this mine to the tipple. This mode of haulage has proved to be, as we understand, a financial success over the method in use at some of our exten-

sive mines, who still depend on mules to haul the coal. The locomotive hauling road is ventilated by a separate furnace or is apart from the one used for ventilating the main body of the workings. The workings are laid out with a view of working them on the double-heading system. The mine floor is undulating, and have also encountered a large fault, making a difference in the level of the coal bed, between the two drifts constituting No. 1 mine, at fault, of about twenty-four feet, indicating an "up-throw or down-throw," this depending upon which ever side you approach the fault. They have also encountered a large fault in No. 2 mine, which is an "up-throw" of twenty-one feet. These difficulties have been a source of much trouble and expense, but as the superintendent of these mines is a young man, full of energy, and not only a theorist, but a thorough practical miner, he generally meets the emergencies and overcomes them skillfully, adding very little extra expense to the company.

No. 1 mine is ventilated by a good furnace. Drainage effected by a steam pump. No 2 mine is ventilated by natural means, but the superintendent intends building a substantial furnace after he gets the ventilating arrangements completed. Drainage produced by Syphon pipes. Taking the mines as a whole, they are well up to the requirements of the ventilating law in every respect.

Franklin Mine

Is a drift opening, located at Houtzdale, and operated by the Kittanning Coal Company. Superintendent, C. B. Findley. E. A. Foster, mining boss.

There are two mines constituting this colliery, at which they employ a mine locomotive to haul the coal from the side stations in mine to tipple. Miners employed in mine, one hundred and sixty, and producing about eight hundred tons of coal daily. Mine running about one half time. Heighth of coal, five feet two inches, with six inches of impure coal additional. Coal used for steam purposes. System of working, double-heading. Ventilation produced by a substantial furnace; size, twelve feet wide, five feet high, with sixteen feet grate bars. Measured about forty thousand cubic feet of air passing near mouth of furnace; but on approaching the face of some of the working, there was not air enough to turn the anemometer. Ventilating arrangements very defective for to have such a good ventilating power. Mine drained by natural means.

Moshannon, No. 2,

Is a drift opening, located near Houtzdale, and operated by the Moshannon Coal Company. P. B. Zentmyre, superintendent; A. P. Isenburg, mining boss.

This mine is opened in a splendid seam of coal; lots of it, and ranging from five and one half feet to seven feet high, good roof, and very little water to contend with. This will be an extensive mine, and through proper management there should be no difficulty in keeping it up to the require-

Working Plan of

EUREKA No. 2,

HOUTZDALE, CLEARFIELD CO, PENNA.

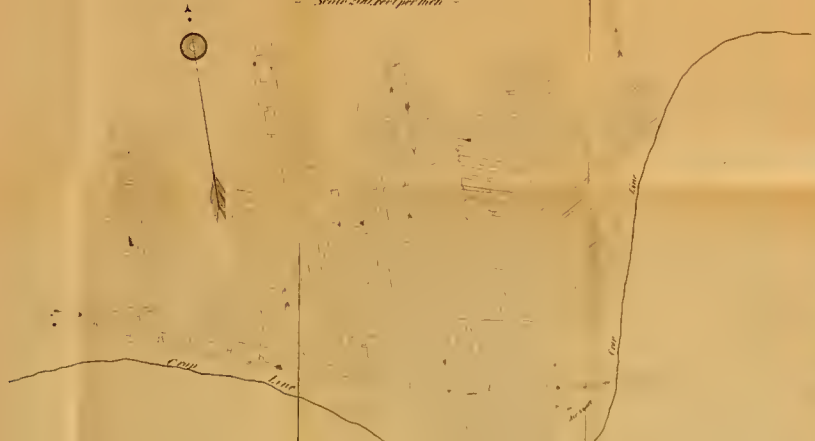
Operated by

BERWIND, WHITE & CO.

104 Walnut St Philadelphia

Peter Cameron, Supt. of Mines.

Scale 200 Feet per Inch



ments of the ventilation law. Mine employs at present one hundred and fifty miners, and producing about eight hundred tons of coal daily, when running. System of working, single entry; but do hope the mine managers will act upon our suggestion, and change to the double entry plan; also, to leave substantial pillars while progressing with their main work, and make good wide air-ways. Ventilation is produced by a furnace seven feet wide, three feet eight inches high above bars, length of arch eighteen feet, furnace shaft eight feet in diameter, forty feet deep, with forty-four feet stack. Measured twenty thousand cubic feet of air passing over furnace, but found very little air at face of workings. Natural drainage.

Moshannon, No. 1, is operated by the same company as No. 2. P. B. Zentmyre, superintendent; C. J. Paul, mining boss.

This is a drift having three other openings. Vein of coal three feet ten inches thick, worked on the single entry system. Ventilation produced by furnace. Mine is in a good condition.

Beaver Run Mine.

There is a slope and drift in connection with this colliery, the workings of which are connected. It is located near Houtzdale, and operated by the Beaver Run Coal Company. Thomas Partridge, mine manager.

Found the mine in a worse condition than any other mine in this district, both in regards ventilation and the plan of working out the coal. However, there is an air-shaft being sunk at present, which will certainly improve ventilation considerably; also, a furnace will be built at bottom of this shaft as soon as it can be put down.

Penn Mine

Is a drift opening, located near Houtzdale, and operated by Reakirt Brothers & Co. George Gould mine manager.

This mine is running very unsteady, and when running doing a small business. Most of the work done in the mine is drawing the pillars. Very few places advancing into new territory. Ventilated by a small furnace. Natural drainage. Mine in fair condition.

Eureka, No. 1.

This is a drift opening, located at Houtzdale, and operated by Berwind, White & Co. Peter Cameron, manager.

This mine will soon be exhausted, as there is nothing but a few pillars to take out; however, the same vigilance is exercised by Mr. Cameron, in regards to the health and safety of the workmen, as any other mine under his charge.

Eureka, No. 2.

This is a double-drift colliery, located near Houtzdale, and operated by Berwind, White & Co. Peter Cameron, junior, superintendent; Peter Cameron, junior, mining boss.

There are two openings to this mine at which coal is taken out, and have

been shipping coal since July 3, 1880; and the present capacity of the colliery is about eleven hundred tons of coal daily. About two hundred and fifty persons are given employment in the mine. This is one of the best conducted mines in the district, and found a more bracing atmosphere in every corner of the workings than in any other mine in the district. I found, in many of the mines, a larger quantity of air at inlet and at furnace, than at this mine, but on approaching the face of the workings the air current was very weak in most cases. I have procured a map of the workings from Peter Cameron, mining engineer, which I present with this report. The system of working is double-heading, and truly carried out. The map will explain the width of rooms, width of headings, size of pillars, &c., and also the distance between the cross-headings, which have a north course. Some of the rooms are driven on an angle of 60°, and some 70°, to the headings they are driven from, and all of the workings are set off and driven on sites. The hauling roads in the mine are laid with T iron rails, sixteen pounds to the yard. Gauge of road, three feet six inches. The coal is five feet nine inches thick, four feet three inches of which is being mined and shipped to market, to be used for steam purposes. The ventilating furnace is six feet wide, five feet high, eighteen feet long, with twelve feet bars. Furnace shaft, six feet in diameter, thirty-seven feet deep, forty-eight feet stack. Mr. Cameron has had large experience in mining, and he shows his ability and experience in the manner in which he conducts the mines under his charge.

Coal Run Mine.

Located on the Houtzdale Branch railroad, near Osceola Mills, and operated by W. J. Jackson. Thomas Young, manager.

The mine is inextensive, having only about five acres of workable coal, and employing twenty-three miners, who produce about seventy-five tons of coal daily, conveyed over a tram-road from the mouth of the drift to chutes one half mile long. Ventilation is produced by natural means, which was somewhat defective at the time of visit. Natural drainage.

MINES LOCATED ON THE MAPLETON BRANCH RAILROAD, NEAR OSCEOLA MILLS—ALL DRIFT OPENINGS.

Mapleton Mine.

Operated by Berwind, White & Co. W. A. Crist, superintendent; John Allan, mining boss.

Two openings. Work very unsteady; only running one half time at the time of visit, owing to the scarcity of cars. Thickness of coal, three feet eight inches, and used for steam purposes. System of working, single-entry, which is carried out well. On examination, found ventilating arrangements very good, and the ventilating current well conducted to the face of all the workings. Mr. Allan takes good care in having all the details of the mine in good shape, which is much to his credit, and giving much comfort to the workingmen.

Logan Mine.

Operated by H. J. Smith. Superintendent, T. M. Simpson; mining boss, William Fitzgerald.

Several openings to this mine. Mine running about one half time, and when working they ship about three hundred tons of coal daily. Heighth of coal, four feet six inches, with an additional six inches of impure coal, ("bony.") System of working, single-entry. On examination I found the ventilating arrangements very imperfect. Proper attention has not been given to the air-ways and other details of the mine, but I have been informed by the mine superintendent that the ventilation has been improved considerably lately. The mine is ventilated by a furnace. Drainage by natural means, and a little defective in some parts of mine.

Laurel Run Mine.

Operated by Nuttal, Bacon & Co. George McGaffey, superintendent; Thomas W. Aschroft mining boss.

This mine, like nearly all the others in this region, is only running one half time, owing to the scarcity of railroad cars. Eighty miners are being employed at this mine, and producing three hundred and seventy-five tons of coal daily. Thickness of seam, four feet six inches. System of working, single-entry. Found ventilating current well conducted to the face of workings, and the general arrangement of the mine in good shape. They have encountered a very large fault, which is a "down-throw," making a difference in the level of the coal bed at fault, of about forty feet. In another heading going in the same direction they have found the same fault, but only shows a "down-throw" or difference in level of coal seam of about four feet. This fault can be easily overcome, and with little extra expense.

Reading Mine.

Operated by Henry Liveright. Superintendent, Henry Liveright; L. F. Riley, mining boss.

Two openings. Coal let down from mouth of drift to chutes by means of an incline plane one hundred and fifty feet long. Seam of coal four feet thick. System of working partly double-heading. Two headings are being driven at present, but the principal part of work is drawing pillars. Ventilation produced by a furnace, and drainage by natural means. The mine is not in as good condition as it ought to be, but the present mining boss is doing all that lies in his power to bring the mine in proper shape.

MINES LOCATED ON THE CAMPBELL BRANCH RAILROAD, NEAR PHILIPSBURG, CENTRE COUNTY.—ALL DRIFT OPENINGS.

Glenwood Mine.

Operated by Huff & Co. C. Campbell, superintendent; C. R. Colburn, mining boss.

Two openings. Height of pure coal, four feet six inches. System of working, single-entry. Ventilation assisted by furnace, and drainage by natural means. Mine in fair condition.

Lancashire Mine.

Operated by Barnes Brothers. John Barnes, superintendent; Richard Aschroft, mining boss.

Two openings. Mine running about one half time. Miners employed, ninety-five, and producing four hundred and fifty tons daily. System of working, single-entry. Ventilated by furnace, and found mine well up to the requirements of the law.

Colorado Mine.

Operated by A. & W. H. Barlow. Mining boss, J. S. Colburn.

Two openings. Coal four feet six inches thick. Mine working one half time. System of working, single-entry. Ventilation assisted by furnace, and drainage by natural means. To have the mine in good condition, will require the mining boss to give more of his attention to hanging doors and building stoppings to guide the air to the working places in mine.

Codyridge Mine.

Operated by H. K. Grant. Thomas Pilkington, mine manager.

Mine has two openings. Workings laid out on the single-entry plan. This mine has been in a very bad condition, but since Mr. Pilkington took charge of the mine, has improved the ventilation very much, and also made some improvements in the mode of working out the coal; and do hope he will continue to improve the mine until it is fully up to the requirements of the law.

Leonard Mine.

Operated by Stein & Herman. Mine manager, William Stein.

They are doing business on a very small scale, only employing twenty-four miners. Found mine in a bad condition, as regards ventilation, but they are going to build a furnace, which will certainly do some good.

Derby Mine.

This is the oldest mine in the region, and by its general appearance inside, we would have no scruple in judging it to be all that is claimed for it. It has changed owners so frequently that the necessary improvements required in a mine from time to time have been sadly neglected. The present operators are the Barnes Brothers; Thomas Shaw, mining boss. They are fixing up the inside of the mine with all possible speed, and intend sinking another air-shaft soon, which will improve the ventilation greatly.

Morrisdale Mines.

These drift openings are located near Morrisdale, and operated by R. B. Wigton & Son. Superintendent, William Wigton; mining boss, William McCann.

This company operates four mines at this place, employing about one hundred and seventy-five miners, and producing eight hundred tons of coal daily, when running. The miners are only working one half time. Thick-

ness of coal seam, four feet six inches. Two of the mines are worked on the double-heading system. In one of the mines, they have met a large fault, indicating an "upthrow" of coal bed of about thirty-five feet. The mines are ventilated by furnaces and drained by natural means. I found all of the mines in good condition, which is a great credit to the mining boss.

Decatur Mine.

This drift opening is located on the Morrisdale Branch railroad, near Morrisdale, and operated by Nuttal & Co. John Nuttal, superintendent; Charles Long, mining boss.

Three openings, employing forty-three miners, and producing about two hundred and fifty tons of coal daily. Mine running half time. Coal four feet eight inches thick, but containing two inches of slate about eighteen inches from bottom of coal. System of working, single entry. Ventilation assisted by furnace and drainage by natural means. Found mine in fair condition.

MINES IN ELK COUNTY.

St. Mary's Mine.

There are two main drift openings in connection with this colliery, one located on each side of the P. & E. R. R., near St. Mary's, and operated by the St. Mary's Coal Company. Joseph Patten, superintendent; Joseph Eddy, mining boss.

Miners employed, seventy, and producing about two hundred tons of coal daily. Height of coal, three feet, and used for steam purposes. Mine worked on the single-entry plan. Furnace ventilation and natural drainage. Mine in fair condition.

Cascade Mine.

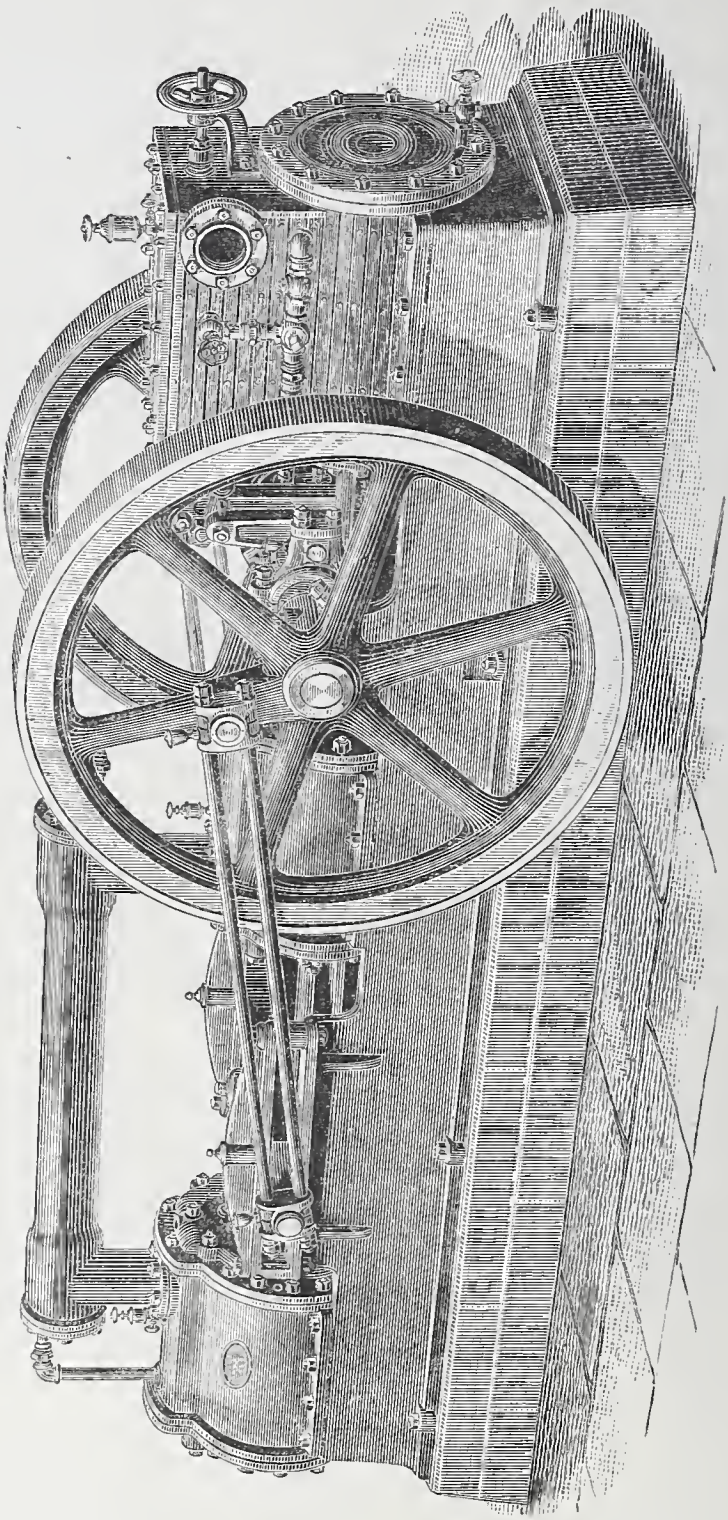
This drift opening is located one and a half miles from St. Mary's, and operated by Kaul & Hall. Andrew Kaul, superintendent; Martin Dibbold, mining boss.

Three openings. The company uses a small locomotive for hauling the coal from mouth of drift to tipple road, about three quarters of a mile long. They employ sixty-six miners, and producing two hundred tons of coal daily. The coal is three feet four inches thick, and used for steam purposes. System of working, double-heading. Furnace ventilation and natural drainage. On examination, I found ventilation and drainage in all parts of mine fully up to the requirements of the ventilation law. The doors and stoppings for guiding the ventilating current to face of workings were all in excellent order, and believe this to be one of the best conducted mines in the district.

Eureka Mine.

This drift opening is located at Centreville, on the Dagus Branch railroad, and operated by D. Eldridge; mining boss, Patrick Fleming.

This mine has several openings. Workings not very extensive, only having, now, a few acres of workable coal. Height of coal, three feet three



inches, and producing one hundred and fifty tons of it daily. Employing forty miners. The mine roof is very soft, causing the workings to be driven narrow, and lots of timber to be stood to keep the roof from falling in. Ventilation and drainage produced by natural means. Mine in fair condition.

Dagus Mines.

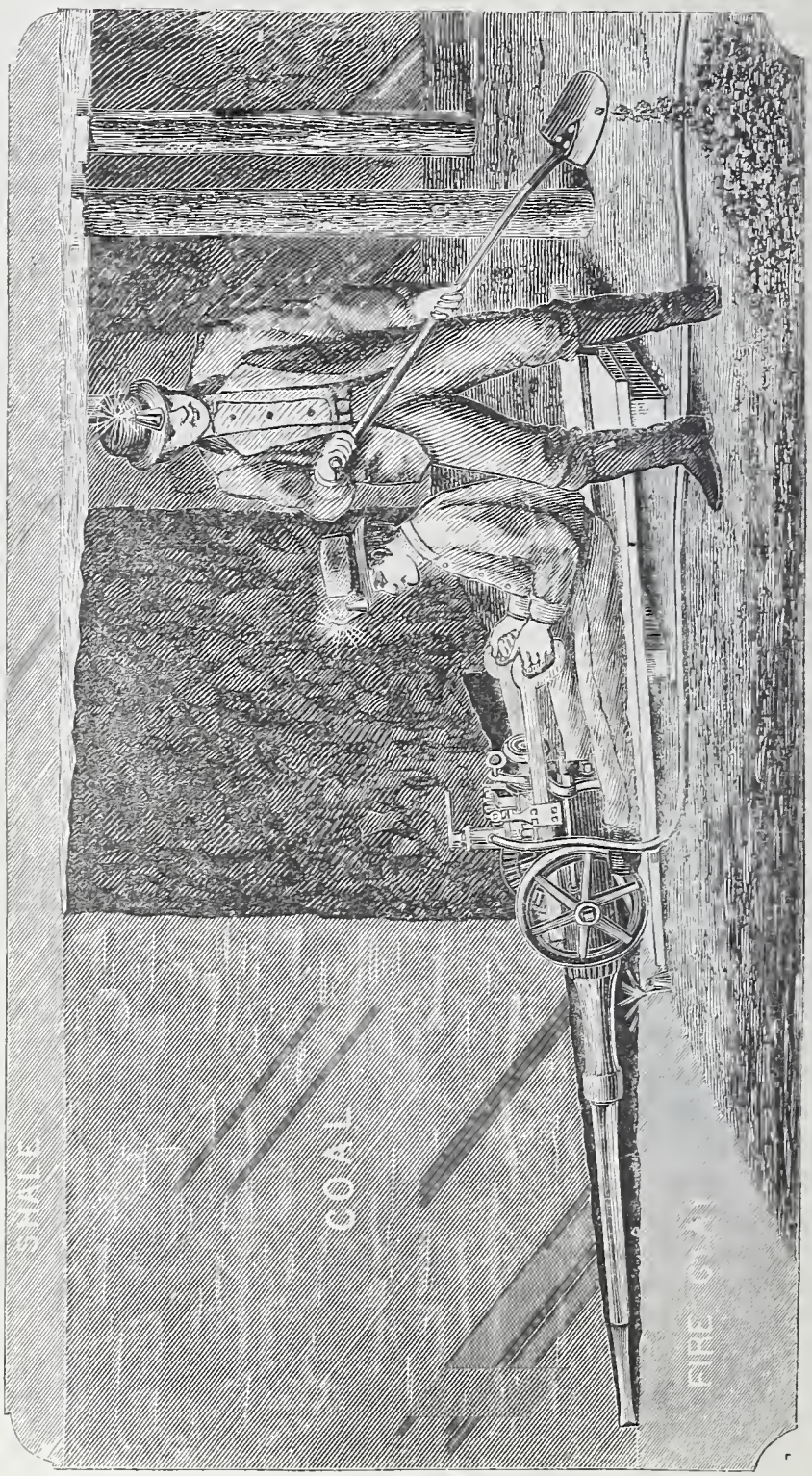
These drift openings are located at the terminus of the Dagus Branch railroad, and operated by the North-western Mining and Exchange Company. Assistant Superintendent, David Robertson; mining boss, John Dowie.

There are eight principal openings, and the mining operations are conducted on a large scale. The natural inlets to this coal which is being mined at present, all lay at the bottom of a deep ravine, with a ridge between the railroad and ravine, but these natural difficulties have all been admirably overcome through the engineering skill of the company's mining engineer, Mr. May, of Scranton, and Assistant Superintendent David Robertson. The coal is brought from bottom of ravine to tipple by means of incline planes, one on the south side of ridge, and one on the north. On top of ridge there is stationed a powerful engine used for bringing up the loaded cars on south plane, which is about nine hundred and eighty-six feet long on an angle of about thirty degrees, double track, worked with endless rope. Fourteen loaded cars are brought up the plane at a trip, the gross weight of which is fourteen tons; fourteen empty cars are descending the plane at the same time. After coal is brought to top of ridge, it is let down to chutes on the north plane by endless rope. Cars run by their own gravity on this plane. There is no delay in transferring the loaded cars from the south plane to the north one, as they are directly opposite each other.

The tipples, at chutes, and in fact the whole of the outside arrangements, have all been admirably constructed, and with a view to lessen manual labor, and to make large shipments of coal.

These mines employ three hundred and fifty miners, and about one hundred outside hands. The vein of coal is three feet six inches high, and shipping one thousand tons daily. The inside workings are laid out on the double-heading system. There is one mine ventilated by a sixteen feet diameter fan, the others are ventilated by furnaces. The air is well distributed and properly conducted to the face of the workings. All the doors and stoppings for guiding the air current are well attended to by the mining boss, John Dowie, and his assistant, James Fusk, insuring the full benefit of the mining fan to the miners. There can be little need of complaint of bad air here. The drainage of the mines is good.

Several new openings have been opened here during the year, and are now ready to ship coal, which will considerably increase their already large out-put. The company has also erected an air compressor, and have purchased five Harrison mining machines, all of which are now ready to do excellent work, we believe. This air compressor is manufactured by the Norwalk Iron Works Company, South Norwalk, Connecticut.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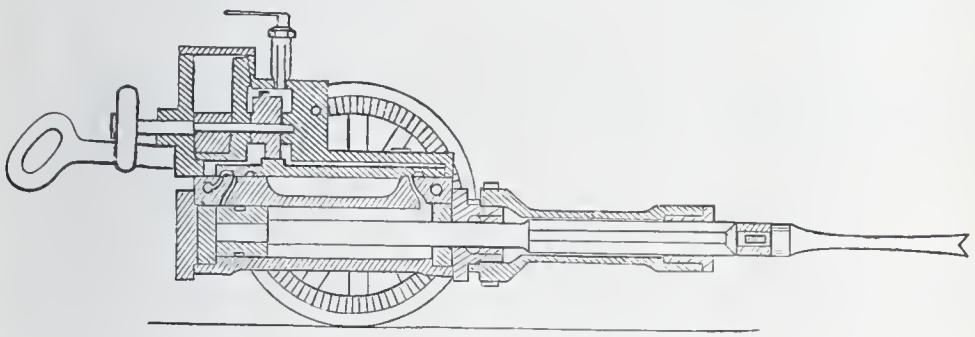
This air-compressor has air-cylinders of twenty inches diameter, and "consists of a large pipe fitted with thin brass tubes of one inch diameter, which presents an extensive and efficient cooling surface. Through the tubes cold water circulates, and—the air passes over them in thin streams—is effectually cooled before entering the second air-cylinder."

"Its ordinary speed is one hundred revolutions, and its capacity is eight hundred and seventy cubic feet of free air per minute."

This compressor is the popular size for driving coal-mining machines, and for this purpose they are giving universal satisfaction. The sulphur-water of the mine can be used for cooling the air during compression without running the risk of injuring some of its parts, as mostly all of its parts that are exposed to the action of the water are made of copper. The compressor is highly recommended by this coal company's mining engineer, (Mr. May.)

The "Harrison mining-machine," on account of its small size, light weight, great strength, and simplicity, can be adapted to nearly all kinds of coal-mining. The machine "is from five feet six inches to seven feet in length from the rear of the handles to the point of the tools. It is only



twenty-four inches high to the top of throttle, and nineteen inches wide over all. Therefore, requires but little room, and can be worked around and between props where a miner can swing a pick."

"It requires only eighteen cubic feet of air per minute, at forty-five pounds pressure, to run it, which is fed to the machine through a one-inch four-ply hose. It strikes from two hundred to two hundred and fifty blows per minute. The total weight of machine is about five hundred pounds. One skilled man will operate it, and one ordinary laborer is required to shovel away the cuttings. For ease in operating it, the operator uses two boards of convenient size for a floor, which the laborer places in the required position as the work progresses. From twenty-five to forty square yards of floor is the ordinary amount under-cut by one machine each day. It has often under-cut from five to six square yards of floor per hour, cutting time."

The managers of these mines think that the machine will be a success, but, owing to opposition of the miners to their introduction, they have not been tested fairly yet.

NEW MINES OPENED DURING THE YEAR.

Ormsby Shaft.

The mine is located three miles east of Jackson Centre, Mercer county, and operated by L. M. Ormsby & Co. L. M. Ormsby, superintendent; Richard Snedden, mining boss.

They have sunk to one of the Upper Mercer vein—same vein as at Stoneboro', only more free from sulphur—four feet seven inches thick. Has a soapstone roof and soft fire-clay floor. Miners employed, forty, and producing one hundred and forty tons of coal per day, but before long will have a capacity to mine and ship three hundred tons daily.

Three openings. The main or hoisting shaft is seventeen feet by eight feet four inches, and fifty-five feet deep. The air-chamber, which is included in the main shaft, is four feet by eight feet four inches. Another opening, which is used for drainage, caused considerable expense, having had to go through a wide quicksand bar with the drain; but through the untiring industry and perseverance of the superintendent the difficulty was most skillfully overcome, and now have a good water passage that will drain their entire coal territory.

The system of working single-entry is a rather defective system for an extensive work. Ventilation at time of visit was rather poor, but have now erected an eighty-feet diameter forcing-fan, with three-feet face, directly over the air-chamber at main shaft, which can give at any time three hundred per cent. more air than the mine requires.

Mr. Ormsby has spared no legitimate expense in providing means to secure the full benefit to the miners of the wise provisions of the mining law, and as the mining boss is an intelligent an practical miner he will most assuredly give his whole attention to having the minor details of the inside workings in a systematical condition.

Instanter Mine.

This is a drift opening, located two miles southeast of Clermont, McKean county, and operated by the Buffalo Coal Company. James Pollock, superintendent; Robert Dick, mining boss.

Two openings. Began to ship coal on the 11th of August. Height of coal three feet three inches, and to be used for steam purposes. System of working, double-heading. Making preparations for building a substantial furnace to ventilate the mine; after being built there will be no necessity of being troubled with foul air. All the arrangements, both inside of the mine and outside, are constructed with a view of making large shipments of coal. Having experienced men at the helm we naturally expect to have good reports from this mine.

Pacific Mine.

This is a drift opening. Commenced to ship coal June 1, and now (September 3) has a capacity to ship five hundred tons of coal daily. It is lo-

cated near Houtsdale, Clearfield county, and operated by Whitehead & Co. A. G. Spears, manager; James Cassady, mining boss.

Two main openings, at which they are taking out coal. One of these is being driven on the dip of the vein, and when the workings of the two mines are connected it will serve the purpose of drainage and be the main inlet to air the mine. Each mine has its separate means of ventilation at present, and found, on examination, a sweeping current of air circulating through nearly every working place largely in excess of the requirements of the mining law. The vein of coal is four feet six inches thick and of excellent quality for steam purposes. System of working, double-heading. The inside and outside arrangements of the mine are admirably constructed, which demonstrates clearly that the company has been fortunate in their selection of a mine manager. Mr. Spears has not only a theoretical knowledge of mining, but also has served a long apprenticeship in the dingy chambers of the mine, whose practical, as well as theoretical, experience will certainly accrue largely to the benefit of his employers.

Harrison Mine

Is a drift opening, located at Houtzdale, Clearfield county, and operated by the Beadling Brothers. Commenced shipping coal August 13.

Victor Mine.

A drift opening and located on the Campbell Branch railroad, Clearfield county, and operated by the Victor Coal Company. Commenced shipping coal in May.

Empire Mine.

A drift opening, located on the Morrisdale Branch railroad, Clearfield county, and operated by the Empire Coal Company. Began to ship coal in month of August.

Hawk's Run Mine

Is a drift opening, located on the Morrisdale Branch railroad, Clearfield county, and operated by Jones, Mull & Co. Began to ship coal in the month of October.

Columbia Mine.

This is a new drift opening, located near Osceola Mills, Clearfield county, operated by Lossee & Woodcock. Commenced mining operations September 20, 1881.

Neshannock Shaft.

This mine is located at Neshannock, Mercer county, and is sunk to the valuable "Sharon Block Coal," and operated by the Neshannock Coal Company. John Philips, superintendent; Adam Parsh, mining boss.

This shaft is eight by seventeen feet, and ninety-seven feet deep. In sinking they were greatly troubled with quick sand—having struck it when only three feet deep, and continued with them in the east end of the shaft

for a depth of fifty feet. Had to use timber from top of surface to top of coal. The roof of mine is very soft, which will cause extra expense in mining. This is a good company, and should like to see them succeed.

Bethel Shaft, No. 4.

This mine is located at Bethel, Mercer county, and operated by the Bethel Coal Company. Thomas Bailey, superintendent; John Phythyon, mining boss.

The shaft was sunk in the month of August to the "Sharon Block Coal." Size of shaft eight by seventeen feet, an air-chamber four by eight feet. Is partitioned off from main shaft to serve for ventilating purposes. Thickness of coal three feet, but of very good quality. System of working single entry.

Virginia Shaft.

This shaft was sunk in October, and is located at New Virginia, Mercer county, and operated by the Perkins Iron Company. Mr. Perkins, superintendent; James Young, mining boss.

The size of shaft is eight by seventeen feet, and one hundred and twenty-five feet deep. It is sunk to the "Sharon Block Coal," and is four feet thick, of excellent quality.

Johnston Mine.

Is a shaft opening located about three miles north-east of New Castle, Lawrence county, and operated by the Penn Coal Company.

Koonce Mine.

This shaft is located in Pymatuning township, Mercer county, and operated by the Morris Coal Company. This shaft is sunk to the block coal, and has been in operation eight months.

Chestnut Ridge Mine.

This is a shaft opening located on the Allegheny and Shenango railroad, two miles east of Pardoe, Mercer county, and operated by Westerman, Filer & Co. Enoch Filer, senior, manager. The shaft is eight by sixteen feet and eighty feet deep.

MINES EXHAUSTED DURING THE YEAR.

In Mercer county. Home Bank, No. 3.

Bethel shafts, one and three; Wheeler and Joy Hill shafts, and Carbon Run drift.

In Clarion county. Catfish drift, No. 3.

Elk county. Hazel Dell.

VENTILATION.

There is no subject more worthy of the attention of mine officials than that of ventilation, and before any person should be allowed to act in the capacity of mine manager, he ought to be thoroughly conversant with the laws governing air in motion. If he does not possess such a knowledge the miners will be the victims of his ignorance.

The bituminous ventilation law requires every mine operator to provide ample means of ventilation affording one hundred cubic feet of air per minute for every person employed in the mine, and it is neeessary that this quantity of air should be eirenlated throughout the entire workings to render harmless the noxious gases generated therein. But there are a few of the mines of this distriet whieh produee blaek-damp (carbonic acid gas) to such an extent that the lawful quantity of air is entirely inadequate to insure the sanitary eondition of the mines, and generally in these mines that produce this gas so copiously, a very injudicious system of conduet-ing the ventilating eurrent through the old abandoned workings prevails, thereby making the air very impure before it reaehes the working ehambers, which will in time have a very deleterious effect upon the miner's constitution. To insure a lawful amount of air every mine should be ventilated by artificial means. Nearly all the mines in this distriet are ventilated artificially. However, we find a few of the mines still depending upon the natural forces to give motion to the air. By depending on natura ventilation alone there is no mine that can be ventilated properly. Natural ventilation depends on the difference of the surfaee levels of the openings ereating the ventilation and upon the differenee of the temperature of the air inside and outside of the mine. The greater these differenees the better the results will be; but at eertain periods of the year, the temperature of the air in the mine and of that outside beeome equal, consequently the eirculation of the air in mine will stop. So this means of ventilating mines is unreliable, and ought to be abandoned.

The powers employed in the district for ventilating purposes are the fan, furnaee and exhaust steam from steam pumps. Exhaust steam is used at many of the shaft openings in Mercer eounty, and as a means of rarefying the air it has proved to be very ineffeetual, and with the eighteen or twenty square feet area air-passages that prevail in these mines, we are safe in saying that no extensive mine ean be ventilated so as to eomply with the law by employing such means. The operators of these shafts have an admirable opportunity to ereet ventilating fans either to work upon the exhaust or foreing principle at little expense, whieh would give them one of the most effieient ventilating power now in use for shallow mines. They are also more reliable, less expensive and give better results than the furnaee for such mines as are in this distriet. Two fans eight feet in diameter with three feet face are employed on the forcing, and a Murphy Champion Ventilator, four feet in diameter, working on the exhaust prineiple at the mines in this eounty, and giving good results. I would not advise any of our operators to purehase a Murphy fan of less diameter than six feet. Sueh a fan would be able to give about fifty thousand eubic feet of air per minute, running under favorable circumstances. The furnace is an admirable ventilating power, and nearly all the mines in the district are ventilated by this means.

Their effeetiveness is greatly diminished, owing to the shallowness of the

air-shaft, and the ridiculous system employed in many of the mines in conducting the ventilating current through old wastes, and through narrow and irregular air-courses. A properly constructed furnace with a favorable depth of shaft, ought to give over four thousand cubic feet of air for every foot in width of grate bars; where the furnace shaft is very deep, an average of six thousand cubic feet of air is given for every foot in width of furnace. If this quality is not produced, the air-ways must be too narrow, or the construction of the furnace defective. To have a properly constructed furnace, it is necessary that it should be nearly double the width that it is high, or for a six feet wide furnace, it should be about four feet high. The idea of having it low, is to bring the passing air as close to the fire, compatible with sufficient sectional area as is possible, so that it will be properly heated. The arch of the furnace ought to be carried to the shaft, having a gradual raise from furnace to shaft. The grate bars should be at least six feet long. The mouth of the furnace should be facing the return air, and to be placed in a location away from any main hauling road. No pillars should be drawn near the furnace on the return air-course. The outside surroundings where the furnace shaft is to be sunk, should be well considered, so as to have the least possible resistance to overcome at any time when the natural forces might be such as to act against the furnace. The size and condition of the air-courses of the mine are very important factors in connection with mine ventilation, and in order to obtain good results from any ventilating power, the air-ways should be of no less sectional area than from thirty-six to forty square feet, should be well cut and kept clean. Double the area of the air-way, and with the same expenditure of power employed upon the large air-way as that required for the small one, double the quantity of air will be obtained, all the other condtions being equal.

We hope that mine officials will give our suggestions due consideration, so that the mines may be more thoroughly cleansed of their impurities, and thereby insuring to the miners the full benefit of the mining law.

PROPOSED AMENDMENTS.

First. There is no person in any way connected with the mines that should possess a more thorough knowledge of all that pertains to mining than the mining boss. That he should possess a theoretical as well as a practical knowledge of mining is absolutely necessary to insure the sanitary condition and profitable operation of the mines.

Much depends upon the intelligence, skill, and industry of the mining boss, in conducting the underground workings. If he is unintelligent and inexperienced, and has no knowledge of the laws in connection with ventilation and the various methods now in use in working out the coal, his employer need not expect to receive very profitable returns upon the capital he has invested. Neither will such official be a responsible person to be intrusted with the protection of the lives and health of the miners. Thousands of dollars are sunk annually for the operators by such men on un-

necessary improvements; a system likely to continue, unless the standard of qualification for mining bosses is advanced by further legislation.

I issued a circular, containing a question, asking the operators of mines whether they were or were not in favor of an amendment to our mining law, requiring all mining bosses to be employed hereafter, and who have not acted in that capacity for three years in succession, to pass an examination upon the theory and practice of mining, before a State examining board. The operators answering, a majority of them are in favor of such an amendment. Among those opposed to it, a few have written stating their objections. They argue that the operator is fully qualified to make the selection of a mining boss; that the examining boards would be organized for political purposes; that many men who have no education make good bosses, while many others who have a good education and could excel before an examining board, could not conduct the workings of a mine profitably and properly. It is not proposed that the amendment should infringe upon the rights of the operators to make their own selection of mining bosses, but that they shall be men who are in every way competent to carry out the requirements of the mining law. The law requires mining bosses to measure the quantity of air weekly in the mines, and to make a report to the inspector of their district once a month, but that cannot be done if they do not possess the necessary qualification; hence the necessity of such officials being in possession of a certificate of competency. Neither do we believe that the examining boards will be organized in favor of any political party, if the proposed amendment should become part of the mining law. There are mining bosses, who being men of great natural abilities, coupled with long experience and practice as miners, that perform the duties of their position with marked success, but even these would certainly be better qualified to fill their important station, if, through education, they had obtained a better knowledge of those attainments requisite for a first class manager. As to the objections, that there are many men who would stand a successful educational test before an examining board and still make impractical bosses, goes for naught, when we consider that under no circumstances would the operator be compelled to engage them.

That such an amendment would eventually be of great benefit and advantage to the operator there can be no doubt, while to the miner it would be a stimulus to acquire a thorough knowledge of their calling.

Second. By glancing at the number of fatal and non-fatal accidents reported in the district, it will be observed that a decrease in the number has taken place this year, against that of 1880, although the coal production has increased largely for the year just closed. After a careful examination of the places where those unfortunate men lost their lives, and the testimony given at the inquests, I am convinced that nearly one half were the direct results of carelessness, while fully one half of the non-fatal accidents take place from the same cause. Owing to the safe character of the working in the mines of this district, there is no need of having one half of the

accidents which take place, if the victims would only use the ordinary precautions incident to mining, such as sounding the roof often and standing timber properly and in sufficient quantities to secure the roof, and attending to spragging the coal. It seems that miners, after having some experience in the mines become inured to the dangers of mining and also become reckless in their methods of working, and in the securing of their working places, that they are heedless of the sure results that will follow their neglect and the untold misery they bring upon their families. During my examinations of the mines, I witnessed instances of inexcusable recklessness and carelessness on the part of the miners in not securing the roof and coal properly. Some places were without props, thirty feet from face of coal, and if one of those unfortunate fissures had been encountered while they were advancing their excavations, they would have certainly paid the penalty of their carelessness with their lives. I found miners lying bearing-in before the coal just at the drop, and had no sprags set to support it, and when reprimanded by me for their carelessness, the old excuse was offered, "I am just going to set sprags or props after I get this car loaded," &c., and in this way they go on loading cars, &c., giving little or no attention to securing themselves against danger, and thus accidents will occur year after year. Some stringent measures are the only means, if adopted, to prevent them. Special rules or an amendment to the mining law is necessary, imposing a heavy penalty for not giving due attention to the securing of the roof in their working places, for not spragging the coal that is under-cut properly, and riding on mine wagons when they have no business to do so. If such special rules or an amendment were adopted, the mining boss ought to be compelled to see that they were observed by the miners.

Third. One of the most striking features I noticed in connection with my visit to the mines of this district was the large number of illiterate boys employed in them, having been compelled, by their fathers, to accompany them at a very early age, and before giving them any opportunity to attend our common schools. If there is anything more debasing to our mining communities than this I know not what it is, as I consider ignorance one of the real causes which lead to the many evils of our mining regions. Surely such an evil as this demands a speedy remedy. The original draft of our mining law contained a provision requiring all boys before being allowed to enter the mines to labor to have some advancement in the elementary principles of an English education, and that the boys be at least twelve years of age. Why such a wise provision as this was lost sight of I know not. The anthracite mining law requires all boys to be twelve years of age before they are allowed to labor in the mines in the anthracite region. The British mining law requires all boys to be twelve years of age, with an educational standard, before allowing them to enter the mines to labor. The mining law of Ohio recognizes this most essential feature, and requires all boys to be able to read and write, and be twelve years of age

before they are taken into the mines. Why cannot we have an amendment to the bituminous mining law requiring all boys to be able to read and write, and have some advancement in arithmetic before being allowed to enter the mines to labor in the bituminous regions? In the bituminous mines of the State hundreds of those boys are growing up in ignorance. What is going to be the effect upon our society if we allow this evil to increase? How are those boys in after years going to be fitted to discharge their duties as honest and intelligent citizens? These are not only questions for the operators of mines and miners, but appeal to every citizen interested in this matter to the end that their rights will not be infringed upon by or through the effects of ignorance. It is not necessity that compels those fathers to take their boys into the mines so young and deprive them of their schooling. In too many cases it is more for the purpose, when work becomes unsteady, of gaining a few extra dollars more than his honest neighbor, so that they can the better satisfy the cravings of their appetite for strong drink on pay night, and for days after it. If we do not put a stop to such an evil by legislation we are simply putting a premium on ignorance and intemperance, and doing a great wrong to innocent boys, who, from the nature of our institutions, will be the citizens of the future.

TABLE 1.—*Showing location of Collieries in the Third Bituminous Mine District.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Atlantic,	John Whitehead & Co.,	Clearfield,	A. G. Spears,	Houtzdale, Clearfield co.
Beaver,	Lee & Patterson,	Lawrence,	H. K. Hartsuff,	Rock Point, Beaver co.
Beaver Run,	Beaver Run Coal Company,	Clearfield,	Thomas Partridge,	Houtzdale, Clearfield co.
Bethel Shaft, No. 1,	Bethel Coal Company,	Mercer,	Thomas Bailey,	Sharon, Mercer co.
Bethel Shaft, No. 4,	do. do.	do.	do.	do.
Buttsville,	J. E. Butts, junior,	McKean,	J. E. Butts,	Buttsville, McKean co.
Catfish,	Pittsburgh Coal and Mining Company,	Clarion,	L. N. Singley,	Catfish, Clarion co.
Clermont,	Buffalo Coal Company,	McKean,	James Pollock,	Clermont, McKean co.
Church Hill,	Church Hill Coal Company,	Clarion,	George Horner,	West Monterey, Clarion co.
Cameron,	Cameron Coal Company,	Cameron,		Cameron, Cameron co.
Cascade,	Kaul & Hall,	Elk,	Andrew Kaul,	St. Mary's Elk co.
Clinton,	Clinton Coal Company.	Lawrence,	Charles Harmony,	Rock Point, Beaver co.
Clearfield,	Clearfield Coal Company,	Clearfield,		Tyler Station, Clearfield co.
Colorado,	A. & W. H. Barlow,	do.	W. H. Barlow,	Philipsburg, Centre co.
Coal Centre,	Neshannock Coal Company,	Lawrence,	John Bell,	New Castle, Lawrence co.
Coal Run,	W. J. Jackson,	Clearfield,	Thomas Young,	Osceola Mills, Clearfield co.
Columbia,	Losee & Woodcock,	do.	J. P. Losee,	do. do.
Clarion,	Clarion Coal Company,	Clarion,	W. W. Greenland,	Clarion, Clarion co.
Codyridge,	H. K. Grant,	Clearfield,	Thomas Pilkington,	Philipsburg, Centre co.
Davidson,	W. B. Enos & Co.,	Lawrence,	W. B. Enos,	Wampum, Lawrence co.
Daguscahonda, No. 1,	North-Western and Exchange Company,	Elk,	David Robinson,	Daguscahonda Mines, Elk co.
Daguscahonda, No. 4,	do. do. do.	Elk,	do.	do. do.
Daguscahonda, No. 5,	do. do. do.	Elk,	do.	do. do.
Daguscahonda, No. 6,	do. do. do.	Elk,	do.	do. do.
Decatur,	Decatur Coal Company,	Clearfield,	John Nuttall,	Phillpsburg, Centre co.
Derby,	Barnes Brothers,	do.	Thomas Barnes,	do. do.
Diamond,	Elias Rogers,	Jefferson,	H. Nicholson,	Reynoldsville, Jefferson co.
Eureka,	D. Eldridge,	Elk,	D. Eldridge,	Kersey, Elk co.
Edenburg,	Mahoning Iron Company,	Lawrence,	Henry Bonnel,	Edenburg, Lawrence co.
Excelsior,	Fisher Brothers & Miller,	Clearfield,	Thomas Richards,	Houtzdale, Clearfield co.
Eureka, No. 1,	Berwind, White & Co.,	do.	Peter Cameron,	do. do.
Eureka, No. 2,	do. do.	do.	do.	do. do.
Egbert,	Filer & Co.,	Mercer,	Enoch Filer,	Sharon, Mercer co.
Fairmount, No. 1,	Fairmount Coal Company,	Clarion,	J. M. Brinker,	Fairmount City, Clarion co.
Fairmount, No. 2,	do. do.	do.	do.	do. do.
Franklin,	Kittanning Coal Company,	Clearfield,	C. B. Findley,	Houtzdale, Clearfield co.
Glenwood,	Huff & Co.,	do.	C. Campbell,	Philipsburg, Centre co.
Goss Run,	Berwind, White & Co.,	do.	Peter Cameron,	Houtzdale, Clearfield co.
Glen Mayo,	James H. Mayo & Co.,	Elk,	A. S. R. Richards,	Rolf, Elk co.
Hilldrup,	Sandy Lick Coal Company,	Clearfield,	L. S. Hay,	Du Bois, Clearfield co.
Hardscrable,	C. F. Hartwell,	Clarion,	C. F. Hartwell,	East Brady, Clarion co.
Hamilton,	Hamilton Coal Company,	Jefferson,	A. V. Armstrong,	Reynoldsville, Jefferson cor
Hickory,	Hickory Coal Company,	Mercer,	Enoch Filer,	Sharon, Mercer co.
Harrison,	Beadling Brothers,	Clearfield,	William Beadling,	Houtzdale, Clearfield co.
Hazel Dell,	Kaul & Hall,	Elk,	Andrew Kaul,	St. Mary's, Elk co.

Home Bank, No. 2	Buhl, Westerman & Co.,	Mercer.	D. Adams,	Sharon, Mercer co.
Instanter, No. 1,	Buffalo Coal Company,	McKean,	James Pollock,	Clermont, McKean co.
Instanter, No. 2,	do. do.	do.	do.	do. do.
Jackson,	Jackson Coal Company,	Mercer,	P. J. Kerr,	Jackson Centre, Mercer co.
Lower Hillville,	Pittsburgh Coal and Mining Company,	Clarion,	L. N. Singley,	Catfish, Clarion co.
Lancashire,	Barnes Brothers,	Clearfield,	Thomas Barnes,	Phillipsburg, Centre co.
Lackawannock,	Pierce Coal Company,	Mercer,	James Pierce,	Sharpsville, Mercer co.
Laurel Run,	Nuttal, Bacon & Co.,	Clearfield,	John Nuttall,	Phillipsburg, Centre co.
Leonard,	Stein & Herman,	do.	William Stein,	do. do.
Logan,	H. J. Smith & Co.,	do.	T. M. Simpson,	Osceola Mills, Clearfield co.
Moshannon, No. 1,	Moshannon Coal Company,	do.	P. B. Zentmyre,	Houtzdale, Clearfield co.
Moshannon, No. 2,	do. do.	do.	do.	do. do.
Maple Grove,	P. S. McCalmont,	Venango,	Charles A. Kinney,	Raymilton, Venango co.
Mapleton,	Berwind, White & Co.,	Clearfield,	W. A. Christ,	Osceola Mills, Clearfield co.
Mineral Ridge,	Mineral Ridge Coal Company,	Clarion.	C. W. H. Elke,	West Monterey, Clarion co.
McElhenney,	Tiel & McDowell,	Venango,		Franklin, Venango co.
Mount Hope,	Mount Hope Coal Company,	Cameron,		Cameron, Cameron co.
Neshannock,	Neshannock Coal Co.	Mercer,	John Phillips,	Sharon, Mercer co.
New Virginia,	Perkins Iron Company,	do.	Wm. Perkins,	do.
Ormsby,	L. M. Ormsby & Co.,	do.	L. M. Ormsby,	Mercer, Mercer co.
Oakland, No. 3,	Pierce & Scott,	do.	Walter Pierce,	Sharpsville, Mercer co.
Ocean,	John Whitehead & Co.,	Clearfield,	A. G. Spears,	Houtzdale, Clearfield co.
Penn,	Reakert Brothers & Co.,	do.	James Gould,	do. do.
Pine Run,	Stephenson & Mitchell,	Clarion,	T. Mitchell,	East Brady, Clarion co.
Pardoe,	Mercer Mining and Manufacturing Company,	Mercer,	Richard Lewis,	Pardoe, Mercer co.
Pancoast,	H. Goodwell & Frank Williams,	Jefferson,	J. C. Baker,	Pancoast, Jefferson co.
Pacific Slope,	Dunham, Roberts & Co.,	Mercer,	Warren Dunham,	Sharon, Mercer co.
Pacific,	John Whitehead & Co.,	Clearfield,	A. G. Spears,	Houtzdale, Clearfield co.
Philadelphia,	James Kennedy,	Venango,	James Kennedy,	Oil City, Venango co.
Rankin,	J. F. Filer & Co.,	Mercer,	Enoch Filer,	Sharon, Mercer co.
Red Bank,	Reynolds & Sons,	Clarion.	David Reynolds,	Red Bank Furnace, Clarion co.
Rochester,	Bell, Lewis & Yates,	Clearfield,	A. J. McHugh,	Du Bois, Clearfield co.
Reading,	Henry Liveright,	do.	Henry Liveright,	Osceola Mills, Clearfield co.
Soldiers' Run,	Powers, Brown & Co.,	Jefferson,	James A. Powers,	Reynoldsville, Jefferson co.
Sandy Lick,	Sandy Lick Coal Company,	Clearfield,	L. S. Hay,	Du Bois, Clearfield co.
Sterling, No. 1,	R. H. Powell & Co.,	do.	James Campbell,	Houtzdale, Clearfield co.
Sterling, No. 2,	do do.	do.	do.	do. do.
St. Mary's,	St. Mary's coal Company,	Elk,	Joseph Patten,	St. Mary's, Elk co.
Stoneboro',	Mercer Iron and Coal Company,	Mercer,	Benjamin F. Esgar,	Stoneboro', Mercer co.
Sligo Branch,	Sligo Branch Coal Company,	Clarion,	Frank Abrams,	Reimersburg, Clarion co.
Spring Hill,	A. B. Lueder,	Clearfield,	A. B. Lueder,	Phillipsburg, Centre co.
Victor,	Victor Coal Company, Limited,	do.	E. W. Holt,	do. do.
Welsh,	Wampum Iron Company, Limited.	Lawrence,	F. H. Oliphant,	Wampum, Lawrence co.
Washington,	Frank Williams,	Jefferson,	J. C. Baker,	Pancoast, Jefferson co.
Wise,	Snyder Coal Company,	Mercer,	Enoch Filer,	Sharon, Mercer co.
Wallace,	Sharpless & Kincaid,	Lawrence,	M. C. Sharpless,	New Castle, Lawrence co.
Wheeler,	Wheeler Iron Company,	Mercer,	E. A. Wheeler,	West Middlesex, Mercer co.

TABLE II.—*A Statement showing Characteristics, Number of Employés, Production, etc., of the respective Collieries in the Third Bituminous Mine District, for five months ended May, 1881.*

NAME OF COLLIERY.	CHARACTER OF COAL. (Bituminous or Semi-Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners—men.	Number of miners—boys.	Other employees.	Total employees.	Number of mules inside.	Number of mules outside.	Number of locomotives.	Total production of coal in tons.
Antrim Nos. 1, 2, and 3,	Semi-bituminous,	Drift,		2	70		341	27	126	494	37		1	
Arnot Nos. 1, 2, and 3,	do.	do.					360	111	115	586	86	1	1	
Barclay Nos. 1, 2, 3, and 4,	do.	do.	2	2		2	253	61	80	394	58	7	1	47,000
Benuington,	do.	Drift,	2	3	40	7	121	23	53	197	34	1		43,879
Bennington,	do.	Shaft,												
Black Diamond,	Bituminous,	Drift,					53	5	5	63	5	4		15,636
Buttsville,	do.	do.	2	1		2	35	3	18	56	8	2		6,132
Carbon Run Nos. 1, 2, and 3,	Semi-bituminous,	do.					141	21	50	212	32	2	1	66,000
Cascade,	Bituminous,	do.					60	14	10	84	2		1	9,000
Clermont,	Semi-bituminous,	do.	1				66	8	10	84	9	1	1	22,783
Coal Dale,	Bituminous,	do.					18	2	2	22	1	3		1,820
Coal Run,	do.	do.					17	1	2	20	1	3		2,595
Conemaugh,	Semi-bituminous,	do.					26	2	6	34	3	2		10,350
Cushon,	do.	do.					66	2	20	88	5			25,399
Daguscahonda, 1, 4, 5, and 6,	Bituminous,	do.	1	3	118	5	267	18	36	321	16	2		89,400
Decatur,	do.	do.					49	12	5	66	4	3		25,197
Eureka No. 2, (Clearfield,)	Semi-bituminous,	do.					140	11	13	164	11			15,944
Eureka, (Elk,)	Bituminous,	do.					85	6	18	109	3	2		15,031
Excelsior,	Semi-bituminous,	do.					155	12	15	182	9	6		44,000
Fall Brook Nos. 1 and 2,	do.	do.	1	1		1	119	26	41	186	29			
Glen White,	do.	do.					56	6	15	77	7	6	1	18,402
Glenwood,	Bituminous,	do.					45	7	8	60	3	1		7,500
Goss Run,	Semi-bituminous,	do.					114	30	14	158	12			17,023
Hilldrup,	Bituminous,	do.					64	6	6	76	4			18,193
Instanter,	Semi-bituminous,	do.	2				70	11	10	91	5	1	1	
Laurel Run,	Bituminous,	do.					68	14	8	90	5	3		33,537
Lloyd's,	Semi-bituminous,	do.		1		2	70	5	14	89	12	6		
McIntyre Nos. 1, 2, and 3,	do.	do.					292	22	77	391	37	1	1	94,819
Mapleton,	do.	do.					40	2	10	52	6	2		
Moredale,	do.	do.					10	4	2	16	2			1,216

Morrisdale,	Bituminous,	do.																
Morris Run Nos. 1, 2, and 3,	Semi-bituminous,	do.		2		4		120		5	307	140	82	529	49		1	149,665
Moshannon No. 2,	Bituminous,	do.									53	3	11	67	7			
Ocean,	do.	do.		2							283	34	43	360	26	1		69,979
Porter,	Semi-bituminous,	Shaft,				1		20		2	52	9	16	77	10	4		9,786
Robertsdale,	do.	Shaft & drift		3		1		90		3	150	12	40	202	17	6		11,409
Rochester,	Bituminous,	Drift,									261	20	42	323	20			97,718
Rolling Mill,	Semi-bituminous,	do.				1		20		2	197	12	72	281	23		1	76,039
Sandy Lick,	Bituminous,	do.		1		1		20		2	37	5	7	49	6			
Snow Shoe,	do.	do.									57	7	6	70	7	2		4,027
Sterling Nos. 1, 2, and 3,	Semi-bituminous,	do.		1		1		12		2	326	39	43	408	25	10	1	79,252
Stineman,	Bituminous,	do.									19	4	6	29	2	1		8,442
St. Mary's,	do.	do.									83	17	17	117	4	3		19,020
Webster Nos. 1 and 2,	Semi-bituminous,	do.		26							260	19	21	300	14	6		
Colorado,	Bituminous,	do.									26	5	2	33	1	1		3,500

TABLE II.—*A statement showing Characteristics, number of Employees, Production, etc., of the respective Collieries in the Third Bituminous Mine District, for the Seven Months ended December, 1881.*

NAME OF COLLIERY.	Character of Coal—Bituminous or Semi-Bituminous.	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	No. of mules inside.	No. or mules outside.	No. of locomotives.	Total production of coal in tons.
Beaver	Bituminous,	Drift,	2			1	83	17	31	131	9	5		3,301
Bethel	do. (block,)	Shaft,	2	1	35	3	46	11	4	61	2			2,611
Cascade	do.	Drift,	2	1	20	1	58	10	9	77	2			17,400
Catfish	do.	do.					45	2	3	50	3			3,040
Church Hill	do.	do.	1	1	20	1	45	8	9	62	2			5,287
Clermont	Semi-bituminous,	do.	1				60	7	9	76	9		2	24,303.29
Clinton	Bituminous,	do.					47	10	14	71	6	6		15,617.26
Colorado	do.	do.					37	4	4	45	2	1		21,600
Daguscahonda, Nos. 1, 4, 5, and 6	do.	do.		3	108	5	307	13	21	341	15	3		138,975
Davidson	do.	do.	1				48	15	14	77	5	3		11,700
Decatur	do.	do.					43	12	5	60	4	3		29,086
Diamond	do.	do.					20	2	5	27	4			10,779
Edenburg	do.	do.	2				31	7	12	50	3	1		11,000
Eureka, No. 2, (Clearfield,)	Semi-bituminous,	do.					211	28	18	257	13	7		28,198.28
Eureka, (Elk,)	Bituminous,	do.					59	6	11	76	2	2		24,499
Excelsior	do.	do.	1				161	12	12	185	10	7		80,860
Fairmount	do.	do.					104	6	7	117	6	6		5,729.02
Franklin	do.	do.					141	16	37	194	23		1	14,430
Glenwood	do.	do.					38	7	9	54	3	1		29,000
Goss Run	Semi-bituminous,	do.					108	30	12	150	13			17,288.10
Hamilton	Bituminous,	do.					61	7	13	81	6	2		31,500
Hardscrable	do.	do.					72	9	10	91	4			23,500
Hickory	do. (block,)	Shaft,	3	1	20	4	44	8	21	73	8			15.554.42
Hilldrup	do.	Drift,					97	8	9	114	8	1		
Home Bank	do. (block,)	Shaft,	1	1	25	2	35	8	5	48	2			2,000
Instanter, Nos. 1 and 2	Semi-bituminous,	Drift,					75	11	9	95	4	1		34,899.27
Koonce	Bituminous, (block,)	Shaft,	1	1	20	2	29	16	16	61	1	2		5,382.10
Lackawannock	do. do.	do.	6	1	40	8	109	10	7	126	4			28,152
Lancashire	do.	Drift,					92	8	9	109	6	3		39,557
Lancashire	do.	do.					65	5	3	73	3	2		6,000
Laurel run	do.	do.					65	14	8	87	5	3		39,041
Lower Hillville	do.	do.					26	3	3	32	3			5,164
Maple Grove	do.	do.					32	1	13	46	2	1	1	5,276.28
Mapleton	Semi-bituminous,	do.					43	1	12	56	7	2		

Morrisdale,	Bituminous,	do.						137	49	36	222	11	6	1	9,710
Moshannon, No. 1,	do.	do.						44	4	9	57	7	1	. .	9,127
Moshannon No. 2,	do.	do.						100	15	15	130	7	7	. .	4,628
New Catfish,	do.	do.						64	5	5	74	4	. .	. .	8,526
Oakland, No. 3,	do.	(block,)	Shaft,		3	1		27	4	10	41	3	. .	. .	10,789.10
Ocean,	Semi-bituminous,		Drift,					263	50	22	335	19	9	. .	32,000.00
Ormsby,	Bituminous,		Shaft,		1	3	50	43	10	6	59	3	. .	. .	19,040
Pacific,	do.		Slope,		2	1	40	36	17	17	70	4	4	. .	7,400.25
Pancoast,	do.		Drift,					32	6	10	48	4	. .	. .	16,373
Pardoe,	do.		do.		3	1	60	82	6	9	97	6	1	1	
Penn,	do.		do.					21	4	6	31	3	2	. .	3,700
Pine Run,	do.		do.					84	17	16	117	5	3	. .	24,257
Rankin,	do.	(block,)	Shaft,		2	1	50	41	8	10	59	3	. .	. .	13,361
Red Bank Furnace,	do.		Drift,					57	10	12	59	4	3	2	11,264
Rochester,	do.		do.					310	21	43	374	22	. .	. .	45,035.15
Sandy Lick,	do.		do.		1		1	39	5	7	51	6	2	. .	
Soldier's Run,	do.		do.					91	4	18	113	8	. .	. .	
Sterling, No. 1 and 2,	Semi-bituminous,		do.		3	2	30	343	49	44	436	29	6	2	186,249
Stoneboro',	Bituminous,		Slope,			1	50	131	22	22	175	12	. .	. .	38,342
St. Mary's,	do.		Drift,					78	16	15	109	4	3	. .	48,100
Washington,	do.		do.					31	2	9	42	3	. .	. .	14,620.20
Webster, (A,)	Semi-bituminous,		do.					110	17	13	140	7	3	. .	
Webster, (B,)	do.		do.					113	16	12	141	7	3	. .	
Welsh,	Bituminous,		do.					33	5	7	45	4	2	. .	6,721
West Moshannon,	do.		do.					120	5	12	137	10	7	. .	7,489
Wheeler,	do.	(block,)	Shaft,		2		2	18	1	1	20	1	. .	. .	700
Wise,	do.	(block,)	do.		2	1	40	35	2	5	42	4	. .	. .	5,000

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Third Bituminous Mine District.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of fan in feet.	Size of furnace—feet.	Amount of air discharged per minute—feet.	Number of openings.	Number of headings.	Inlets, size of, square feet.	Outlet, size of, square feet.
Atlantic,	Furnace,		3 x 4	10,000	2	4	42	25
Beaver Run,	Natural means,			1,000	2	2	60	30
Beaver,	Ex. steam & furnace,		3 x 3	8,000	3	4	30	80
Bethel, No. 4,	Exhaust steam,			4,400	1	2	112	16
Buttsville,	Natural,			8,000	6		36	36
Codyridge,	Furnace,		2 x 3	2,500	2	2	42	18
Columbia,	Natural.							
Clermont,	Furnace,		3 x 4	6,650	2	8	33	19
Cascade,	Furnace,		4 x 6	10,000	3	4	42	24
Colorado,	Furnace,		5 x 6	10,800	2	4	45	55
Church Hill,	Furnace,		2 x 3	3,000	2	2	42	16
Coal Centre,	Natural,			3,000	3		42	42
Coal Run,	Natural,			2,000	3		36	36
Daguscahonda, No. 1,	Fan,	16		20,000	2	4	42	100
Daguscahonda, No. 4,	Furnace,		4 x 6	13,430	2	3	36	30
Daguscahonda, No. 5,	Furnace,		$5\frac{1}{2}$ x $3\frac{1}{2}$	8,700	2	2	30	30
Daguscahonda, No. 6,	Furnace,		3 x $6\frac{1}{2}$	8,873	2	4	30	21
Davidson,	Natural,			6,300	3	3	53	36
Decatur,	Furnace,		5 x 6	12,000	2	4	36	40
Diamond,	Natural,			3,000	2		36	30
Derby,	Natural,			1,500	2	2	48	30
Excelsior,	Furnace,		$5\frac{2}{3}$ x $3\frac{2}{3}$	19,620	3	4	54	36
Eureka, (Elk,)	Small furnace,			3,960	4	5	42	18
Eureka, No. 1. (Clearfield.)	Natural,			2.000	2		42	30
Eureka, No. 2, (Clearfield,)	Furnace,		6 x 5	26,000	3	6	84	36
Edenburg,	Furnace,		7 x $3\frac{1}{2}$	6,000	2	1	36	22
Empire,	Furnace.			4,000	2	2	36	30
Franklin, Nos. 1 and 2,	Furnace,		12 x 5	40,000	3	4	66	36
Fairmount, No. 2,	Natural,				2		42	42
Fairmount, No. 4,	Natural,			2,026	3	2	40	40
Goss Run,	Furnace,		6 x 4	10,000	3	2	56	36
Glenwood,	Furnace,		5 x 5	10,000	3	2	35	60
Hickory,	Exhaust steam,			8,000	2	1	20	30
Hardscrable,	Natural,			3,950	4	5	114	40
Hamilton,	Furnace,		5 x $2\frac{3}{4}$	13,650	4	2	90	78
Hildrup,	Furnace.		$8\frac{1}{4}$ x $6\frac{1}{2}$	13,920	3	9	48	48
Instanter, No. 1,	Furnace,		4 x 4	6,650	3	7	38	27
Instanter, No. 2,	Furnace,		6 x 4	13,125	2	2	30	35
Jackson Centre,	Furnace,		$4\frac{3}{4}$ x $4\frac{2}{3}$	6,000	3	3	36	30
Koonce,	Exhaust steam,			6,570	2	1	24	24
Lackawannock,	Exhaust steam,			11,210	2	2	16	55
Laurel Run,	Furnace,		6 x 5	12,500	4	6	34	40
Lancashire,	Furnace,		$4\frac{1}{2}$ x $4\frac{1}{2}$	9,000	3	5	35	21
Lower Hillville,	Natural,			7,035	2	1	45	42
Leonard,	Natural,			1,000	2	2	36	30
Logan,	Furnace,		5 x 5	14,000	2	2	42	30
Mapleton,	Furnace,		$5\frac{1}{2}$ x 4	8,280	3	3	42	48
Maple Grove,	Furnace,		6 x 4	11,783	4	2	30	30
Morrisdale, No. 7,	Furnace,		$4\frac{1}{4}$ x 6	4,980	2	2	36	30
Morrisdale, No. 8,	Furnace,		4 x 6	12,000	2	4	42	30
Morrisdale, No. 10,	Furnace,		$4\frac{1}{4}$ x 6	5,000	2	2	42	30
Moshannon, No. 1,	Furnace,		7 x $3\frac{2}{3}$	20,000	3	3	42	30
Moshannon, No. 2,	Furnace,		5 x $3\frac{1}{2}$	8,000	2	1	45	30
Mineral Ridge,	Furnace,		5 x $3\frac{1}{2}$	8,000	4	4	42	30
New Catfish,	Natural,			6,680	2	1	45	36
New Virginia,	Exhaust steam,				1	3	112	18
Neshannock,	Exhaust steam,				1	3	112	18
Oakland,	Exhaust steam,			4,570	1	1	112	18
Ocean,	Furnace,		7 x 4	20,000	4	10	80	52
Ormsby,	Fan,	8		30,000	4	4	32	136
Pine Run,	Furnace,		2 x 3	5,425	2	2	42	35
Pancoast,	Furnace,		4 x 4	6,248	2	6	42	42
Pacific Slope.	Furnace,		$2\frac{2}{3}$ x $2\frac{1}{4}$	6,750	2		48	20
Pacific,	Furnace,		5 x 5	12,000	2	4	42	30
Penn,	Natural,			3,000	2		36	30
Pardoe,	Fan,	8		30,000	3	3	36	30
Philadelphia,	Furnace.							

TABLE III.—METHOD OF VENTILATION, &c.—*Continued.*

NAME OF COLLIERY.	HOW VENTILATED.	Diameter of fan in feet.	Size of furnace—feet.	Amount of air discharged per minute—feet.	Number of openings.	Number of headings.	Inlets, size of, square feet.	Outlet, size of, square feet.
Reading,	Furnace,		5 x 4	14,040	2	2	36	30
Rankin,	Exhaust steam,			10,500	2	2	45	36
Red Bank Furnace,	Natural,			6,163	4	4	68	54
Rochester,	Furnace,		6 x 4⅛	25,000	4	17	84	30
Sandy Lick,	Furnace,		4 x 3	10,000	2	2	42	42
St. Mary's,	Furnace,		5 x 4½	11,016	2	1	54	54
Sterling, No. 1,	Furnace,		6 x 4	17,469	6	10	132	125
Sterling, No. 2,	Furnace,		12 x 8	37,512	10	17	146	197
Soldier Run,	Furnace,		6 x 3½	13,125	3	2	152	35
Stoneboro',	Furnace,		6⅝ x 4½	20,000	4	4	62	36
Washington,	Natural,			5,565	2	6	42	42
Wise,	Fan & exhaust steam,	4		9,116	2	1	42	33
Welsh,	Furnace,		6 x 4	4,343	5		30	30
Webster, No. 1, (A,)	Furnace,		5½ x 3½	16,065	2	2	42	30
Webster, No. 2, (B)	Furnace,		5½ x 3¼	6,500	3	4	35	30
Victor,	Natural,			6,000	2	4	42	30

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries in the Third Bituminous Mine District during the year 1881.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim,	. .	.	300	7,500	1,044	50,112	. . .	. . . .		. .	944	45 312	.	. . . .			860	41.280
											410	17.220	.	. .	300	7,500	410	17.220
Arnot,	930	37,200	519	16,618	450	31,500	372	26 784	300	7,500	510	13.770					510	13 770
							670	26,800	501	16,032	716	30 072	350	25,200	400	13 200	630	26,460
							447	29.055	270	10,140	519	25 650	652	26 240	250	10 500	650	32 500
Barclay,	400	32 760	220	10.560	680	68.000	420	38,220	483	11,592	393	27 510	429	27,829	501	12.024	402	28.140
	230	15,640	200	8 000	380	37.340	260	17,680	160	6,400	580	58.000	. . .	.	200	7,600	700	70.000
			220	8,800	450	36 000	. .		180	7.200	540	52.920			180	7,200	500	49,000
			330	9 200	420	15.220			150	6,400	380	30.400	400	36.400	230	9,200	450	36,000
Bennington,	250	36.000	214	10.496	75	36.400	213	29 860	164	7 720	450	16.000	2,300	15.640	180	7,600	420	15,120
Black Diamond,	250	7,500	210	8,800	250	8 000	190	5.700	100	3,000	80	28.349	213	29,950	210	9,400	81	29.969
Buttsville,	203	7,308	. . .	. .	290	10 440	203	7,308	. .	.	250	8,700	120	4,600	100	3 600	120	4 900
Carbon Run,	. . .	. . .	. .	.	649	20,443	. . .	. .	. .	. . . .	297	10.692	300	11,350	100	4 680	320	12.600
					169	8,450	. .	.	.	. .	589	18.350	.	. .	.	. . . .	569	17.923
					459	41.769	. .	.	.	.	219	10 950	. .	. .	.	. . .	269	10,950
Cascade,	250	10.500	340	10 000	360	11 000					349	31,759		. .	.		359	32,669
Clermont,	120	3.960	110	1.980	370	7,030	120	3.960	100	1,980	370	7,030	120	3,960	110	1,980	370	7,030
	120	4,620	110	2 310	270	7,560												
Colorado,													120	5.400	100	4 550	203	6 980
Conemaugh,	98	3.528	48	1 440	118	3.658	98	3.528	48	1.440	118	3.658	98	3.528	48	1,440	181	6.630
Cushon,	56	3.584	58	3.132	155	3,185	56	3.584	58	3,132	155	3,875	56	3.584	58	3 132	156	6,690
Daguscahonda, No. 1,	350	10,500	330	9.900	500	13,000	360	10 950	340	10.200	520	18 720	365	10.950	350	10.500	520	18.720
Daguscahonda, No. 4,	345	10,350	340	7,140	500	19,180	140	4.200	140	2,940	360	7.560	140	4 200	140	2 940	355	7.455
Daguscahonda, No. 5,	. . .	. .	. . .	. . .		.	260	7,800	320	6 720	275	8.250	255	7,650	300	6,300	275	8 250
Daguscahonda, No. 6,			. .				345	10,350	345	7,245	515	10 815	345	10,350	340	7 140	510	10 710
Decatur,	165	7 164	160	6,208	160	7.760	200	8.424	250	9.088	250	11.360	110	15 184	150	9,680	200	15,280
Eureka, (Clearfield,)	400	17,976	300	13 240	370	17.950	390	17 568	295	13.040	375	18,164						
Eureka, (Elk,)	460	4,860	260	2,640	360	6,000	220	8,100	170	4,590	220	8,640	210	3,000	100	2,700	200	6,000

Excelsior,	220	14,400	200	13,680	600	21,900	245	17,640	200	12,800	650	23,500	245	15,680	200	14,800	647	23,302
Fall Brook,	280	8,400	240	5,760	320	9,600	280	8,400	250	6,000	320	9,600	280	8,400	250	6,000	320	9,600
	280	9,800	250	6,000	320	19,200	285	9,200	250	6,000	320	19,200	285	9,970	245	5,885	325	19,500
Glen White,	155	5,580	90	2,250	260	5,780	150	5,400	70	3,150	260	5,720	160	5,760	80	3,600	270	5,940
Glenwood,	210	7,350	135	3,510	350	21,000												
Goss Run,	300	18,536	295	14,020	385	14,884	300	18,536	295	13,861	385	14,635						
Hilldrup,							175	8,400	170	8,160	230	9,200	180	8,640	160	7,000	225	9,000
Instanter,							110	4,235	100	2,100	270	7,200	110	4,235	100	2,310	270	7,220
Laurel Run,	450	16,456	240	9,864	400	17,360	250	8,656	125	5,724	225	10,360	250	9,656	150	6,625	300	11,356
Lloyd's,	550	19,250	230	8,050	580	20,030	550	19,250	380	12,600	580	23,000						
McIntyre,	240	8,184	300	99,330	350	17,241	200	18,252	150	6,556	400	23,958	180	16,745	140	5,625		
	180	11,300	110	4,401	370	22,337	180	10,300	130	5,625	340	17,750	170	9,835	130	5,315	330	22,860
	190	17,695	150	5,936			260	8,766	150	5,565			240	9,184	360	11,676	300	15,883
Mapleton,	110	10,000	150	9,504	210	11,664	100	6,132	100	6,000	200	11,232	180	9,260	139	8,260	200	11,232
Moredale,	250	7,500	130	4,360	240	10,080	170	6,800	100	3,360	240	7,200						
Morrisdale,	160	8,234			250	16,180												
	80	8,510			170	6,180												
Morris Run,	430	38,700	170	7,650	870	62,640	430	33,700	170	7,650	860	61,920	430	38,700	160	7,200	875	63,000
							430	55,960	170	7,650	865	57,420	425	55,250	150	6,700	860	57,440
							430	38,700	170	7,200	870	45,220	420	38,260	165	7,650	865	45,220
Moshannon, No. 2,	275	12,100	250	11,475	275	15,400							265	14,840	245	11,025	275	12,100
Ocean,	315	18,900	200	5,000	300	24,700	315	19,845	190	4,750	350	18,200	345	21,735	195	4,875	460	27,900
Porter,													320	15,420				
Robertsdale,													500	16,500	475	14,000	600	18,000
Rochester,	350	19,200	140	5,600	450	28,350	350	16,240	160	11,200	330	17,000	400	18,640	150	7,200	650	29,400
Rolling-Mill,	720	46,080	400	20,000	618	43,260	720	46,080	400	20,000	618	43,260	720	46,080	400	20,000	619	43,330
Sandy Lick,							275	11,550	225	10,800	300	12,600	225	9,450	185	8,890	235	9,960
Snow Shoe,	345	14,366	350	12,600	345	16,800												
Sterling, No. 1,	380	20,900	210	12,600	280	33,040	210	17,850	90	5,400	210	18,900						
	350	19,250	180	10,800	350	17,500	350	19,250	110	6,600	320	16,000						
Sterling, No. 2,	350	14,700	150	6,000	380	16,000	250	9,590			220	9,240						
							160	6,720	120	7,200	200	7,000						
St. Mary's,	206	12,000	205	11,600	204	12,980												

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim,	. . .	. . . .	. . .	. . . .	1,000	48,000	. . .	. . . .		. .	1,000	48,000	*	. . . .		. . .	855	41,000
					410	17,220	.	. . . .	295	7,500	500	13,770	*	. . . .	295	7,400	475	12,220
			300	7,500	500	13,770												
Arnot,	280	20,160	310	9,920	580	24,360	550	23,100	250	8,000	300	21,600	*295	12,250	167	5 200	262	16 415
	375	18,750	200	8,200	644	25 760	411	20,500	230	9,660	680	27,260	*251	12,350	145	6,120	442	18,700
	365	21,100	358	9,000	366	25 620	420	27,300	393	10,848	393	27,570	*346	22,500	348	8,200	323	23,250
Barclay,	. . .		220	10 560	550	55,000												
			250	10,000	430	42,140												
	500	36 000	230	9.200	450	36 000												
	240	16 320	260	10, 400	420	15,120												
Bennington,	229	29,480	200	9,500	94	30,000	211	31,400	200	9.100	94	37,000	*222	29 000	167	7,950	88	27,500
Black Diamond,	190	5,700	100	4,500	215	7,525	120	4,320	95	4,050	180	7.200						
Carbon Run,	.	. . .		. .	. .	. . . .		. .		. .	539	16,978						
											219	10,950						
											359	35 932						
Cascade,							190	7,980	260	7.280	285	7,900	190	7,980	260	7,280	285	7 980
Clermont,	120	3,960	110	1,980	370	7,030							117	3,377	107	1,942	337	6.412
Colorado,	.		. . .				208	6 240	118	5 900	240	7,200	200	6,180			235	7,050
Conemaugh,	98	3,492	48	1.440	118	3,658	98	3,528	48	1,440	118	3 608	*719½	46 033	397½	19,875	619	43,347½
													*97¼	3.500	47¼	1 420	117½	3,642
Cushon,	57	3,000	50	2,800	156	3 900	57	3,640	54	3 132	156	3,900	*57⅓	3.680	59½	3,156	157⅝	3.938
Daguscahonda, No. 1,	365	10,950	350	10,500	530	19,080	360	10, 800	365	10,000	535	19,260	359	10,762	354	10 612	521	18 665
Daguscahonda, No. 4,	170	5,100	135	2,835	355	17 455	300	9,000	310	6.510	280	8 400	181	6,438				
Daguscahonda, No. 5,	260	17,800	325	7,825	279	17,100	330	9,900	315	6,615	520	15,920	258	7,725	289	6 064	259	7,763
Daguscahonda, No 6,	350	10,500	345	7.245	520	10,920						. .	260	7.800	304	6 379	471	9,896
Decatur,	100	4,824	135	5,408	150	7 360	150	5,830	95	5,184	150	7,360	75	5,400	174	5 560	171	6 850
Eureka, (Elk,)	200	6.000	100	2,700	195	6 200		. .				. .	177	7 455	155	4.538	230	4.140
Excelsior,	235	15.040	195	13,968	665	23 980	.		.	. .		. .	232	14 880	210	15 120	640	23,000
Fall Brook,	280	8,400	260	6.000	285	9,975	280	8 400	250	6,000	245	7,350	*230	6.900	196	4,740	258	7.750
	285	7,200	260	6,240	325	19,500	275	9 800	255	6,120	320	19,200	*252	8,872	195	5,120	295	17,600

Glen White,	175	6,270	90	4,050	290	6,380	170	6,120	80	3 280	280	6,160	*162½	5,800	75	3,150	267½	5 880
Glenwood,							200	12 400	275	12,000	340	14,280	194	6 790	130	3 280	335	20 100
Hilldrup,	275	13 200	250	12,000	275	13,300	280	13,440	260	12,480	300	14 400	267	12 840	253	12,120	267	12 840
Instanter,	110	4 235	100	2 100	270	7,290							110	4 325	105	2 205	257	6,953
Laurel Run,	300	11 356	150	6 624	250	11,560	230	9 656	80	4,104	225	10,360	281	9 562	150	9,000	300	12,000
Lloyd's,	550	19,250	250	8,750	580	20 030	410	14 350	210	7,700	670	26,450						
McIntyre,	200	18,252	150	5,936			150	8 904	200	8 184	230	12 628	*162	6 100	192	6 947		
	170	9,835	140	4,983	400	23,968	170	15,982	100	3,237	360	21 834	*152	9 261	98	4 036	220	12,500
	200	7,020	280	8,748	280	14 956	140	9,874	130	5,315	220	13,683	*158	15 075	135	5 250	345	20 115
													*140	9,854	200	7,580	235	12,212
Mapleton,	110	6 152	140	9,144	210	11,664	110	6,132	100	5,600	190	10,752	88	6,336	115	4,140	185	8 880
Moredale,	110	4 620	90	3,224	150	5,460												
Morris Run,	430	38 700	160	7 200	870	62 640	430	38 700	150	6,975	875	63 000	*432½	38 922	155	6 975	865	62 000
	430	55 900	155	6 957	875	57 750	425	55,900	155	6 750	870	57 420	*432⅔	55,380	156	6,920	865	57 300
	430	38,250	170	7,650	875	45 480	430	38 250	165	7 425	865	4 548	*432½	38 900	166	7,400	862	45,425
Moshannon, No. 2,													292	10 780	222	10 012	257	11,330
Ocean,	350	18,200	200	5 000	330	20,790	330	16,860	230	5,750	340	17,680	339	21,357	198	4 950	325	16 900
Penn,													147	5,880	60	4,800	561	8,415
Porter,	320	12 600			460	15 200	320	10,240			325	13,000						
Rochester,	500	24,000	150	7 200	700	28,000	400	19 200	120	14,400	700	28,000						
Rolling Mill,	720	46,000	400	20,000	620	48,200	720	46,080	400	20 000	620	48,400						
Sandy Lick,	250	10,000	200	9 400	256	10,500	220	10,560	195	9,300	225	10,800	205	9,840	195	9 360	205	9 840
Sterling, No. 1,	200	23,600	200	6,600	240	24,100							185	18,500	98	10,584	223	16,688
	250	23,250	200	12,000	350	26 240												
Sterling, No. 2,	200	8 400	110	6,600	220	9 800							188	15,000	83	4,950	213	12,650
	200	9,800	90	5,400	100	9 600												
St. Mary's,	205	12 852	203	11,328	212	13,330	205	12 852	203	11,328	210	13,132	205	11,070	206	9,888	205	11 070
Webster,	270	22,470	180	7,200	690	23 200							265	11,947	215	9 030	567	17 025
	280	12,600	220	8 820	630	17 400							277	12 765	182	7,300	677	18,092

*Transferred to Fourth district June 1, 1881, upon re-districting the bituminous coal region into four districts.

TABLE IV.—VENTILATION OF COLLIERIES.—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Beaver,	225	13,500	170	8,500	463	13,875	225	9 100	100	9,800	463	13,875						
Cascade,	200	9 600	340	8,160	300	10.500	208	8,715	365	8 160	310	8,680	215	10,320	410	9,840	378	10,570
Catfish,	144	6,468	135	5,670	197	7,010												
Church Hill,	. .						115	5,040	78	2,790	500	18,000						
Clermont,	113	3.712	105	1.890	312	5.937	108	3 547	105	1.890	325	6,175	115	3,795	113	2 016	325	6 175
Clinton,	113	8,100	125	7,500	343	10,275	120	8.640	114	6 825	383	11,475	120	8 640	114	8,640	333	11,475
Colorado,	220	6,585	216	6.480	239	7,178	218	6,540	119	6,648	236	7.065	235	10 575	195	10 711	233	14 097
Daguscahonda, No. 1,	358	10,725	324	9,712	515	18,540	308	10,725	308	9,225	483	17, 370	349	10,460	273	8,175	465	16,740
Daguscahonda, No. 4,	189	5.662					178	5 325	178	5,325	178	5,325	168	5,025				
Daguscahonda, No. 5,	261	7.837	256	5,331	268	8,025	260	7,800	210	4,410	266	7,998	256	7.687	203	4,252	266	7.987
Daguscahonda, No. 6,	255	7,650	263	5,512	433	9,082	233	6,975	220	4.620	393	8,242	238	7 125	179	3.754	359	7,160
Davidson,	100	5,300	60	6,300	200	6 600	115	6,115	68	6.087	190	6,075	103	5,432	65	6,000	149	7,000
Decatur,	80	5.760	78	2,480	75	3,000	94	3,375	131	4,184	141	5,630	106	3,807	128	4,080	148	5,930
Diamond,	200	7.000					77	3.773					96	4.704				
Edenburg,	98	3,480	143	4,648	245	9,912	158	5 670	163	5 281	321	7,228	143	5.130	110	3 960	320	7,100
Eureka, (Elk,)	208	8 715					203	8,505	168	4,522	195	3 510	205	8,610	143	3 847	500	9,000
Excelsior,	223	14,240	205	11,480	648	23.310	223	14,230	185	13,320	645	23,220	223	14,230	178	12,980	655	23,580
Fairmount,	281	11,812	192	16,886	113	15.300												
Franklin,	284	27.524			496	29.775												
Glenwood,	194	6.790	130	3,380	335	20,100	135	6,750	115	4,600	221	8.850	194	6,781	130	3,380	335	20,100
Hamilton,	149	11.602	110	4,400	154	11,377	172	13 048	148	11,866	197	15,301	140	6,800	140	12.320	181	12 687
Hardscrabble,	98	5.789	50	4,800	95	7,800	101	5,973	49	4,740	150	6,000	96	5.679	53	5,112	90	6,000
Hickory,	200	7.000	134	6,000	300	9,000	406	8,125	158	7 100	271	8.125	300	6,000	150	6,750	283	8,500
Hilldrup,	295	14,160	275	13,200	295	14,160	213	10,160	163	7,800	213	10.100	238	11.300	188	8,900	238	11,400
Instanter, No. 1,	105	4.042	103	2,150	255	6 885	105	4,042	103	2,152	260	7,020	100	3,650	115	2 415	270	7,290
Instanter, No. 2,	. .												400	1.200	600	10,800	340	12.000
Lackawannock,	254	12.200	220	12,066	250	12 500	214	10.216	205	10 250	300	16 500	188	10,312	189	9.450	200	10,312
Lancashire,	172	6,000	172	6,0 0	400	8.000	250	5 000	230	3,000	350	7,000	150	6.000	100	4,000	320	8.000
Laurel Run,	244	8 237	119	4.275	206	8.250							225	7,650	115	4.140	196	7.850
Lower Hillville,	178	7,987	165	6,930	190	7,980	173	7,762	200	7,200			165	6,930	150	4,000	199	8,358

Maple Grove,	105	3,135	58	3,480	402	13,852	124	3,728	65	3,900	459	13,760										
Mapleton,	85	6,120	93	3,330	173	8,280	83	5,940	95	3,420	178	8,520	83	5,940	100	7,200	175	8,400				
Morrisdale,	120	2,880	80	4,320	140	8,960																
Moshannon, No. 1,	223	12,740	205	9,225	300	13,200	223	12,460	200	9,000	275	12,100	208	11,620	138	8,437	223	9,700				
New Catfish,							165	7,425			200	7,200	175	7,875	140	5,000	223	7,020				
Oakland, No. 3,	96	3,690	43	2,182	190	3,432	89	3,409	43	1,700	205	3,758	93	3,731	35	1,460	205	3,758				
Ocean,	349	20,727	198	4,812	450	23,400																
Ormsby,																						
Pacific,	213	7,650			328	7,369					1,633	52,256	136	31,600	333	20,000	1,500	4,800				
Pancoast,	130	5,460	115	5,175	149	6,507	126	5,303	129	5,794	165	6,380	185	8,360			450	9,000				
Pardoe,	788	31,520	146	5,247	500	30,500	938	37,500	173	6,237	556	33,937	134	5,617	106	4,781	139	5,870				
Pine Run,	170	7,402	83	3,675	157	5,532	175	7,350	83	3,405	155	4,425	981	39,230			656	39,993				
Rankin,	224	10,080	147	4,941	286	10,949	216	9,731	129	3,862	250	9,625	185	7,770	95	3,890	160	5,600				
Red Bank Furnace,							125	8,466	77	3,625	150	9,150	224	10,069	201	6,037	270	11,510				
Rochester,	281	11,812	109	5,232	631	24,303	250	12,000	100	4,800	300	12,375	115	7,820	91	6,296	109	6,624				
Sandy Lick,	218	10,440	203	9,720	218	10,440	163	7,800	113	5,300	163	7,800	163	7,700	138	6,500	163	7,700				
Soldier Run,	144	12,075	118	9,450	333	11,637	159	13,387	119	10,450	371	12,994	156	13,860	120	10,080	363	13,860				
Sterling, No. 1, (A,)	193	18,095	105	10,500	180	18,300	223	35,234	120	10,560	131	38,514	271	44,653	182	15,972	270	51,030				
Sterling, No. 1, (B,)	250	21,500	108	4,800	295	22,325																
Sterling, No. 2,	215	11,130	60	5,700	305	12,200	183	9,490	75	2,900	220	8,800	374	18,314	90	4,320	378	15,100				
Stoneboro',							120	8,182	137	10,701	385	16,087	144	10,205	140	12,320	613	17,136				
St. Mary's,	204	11,002	204	9,792	204	11,216	205	11,070	206	9,898	207	11,178	201	10,827	203	9,792	203	10,962				
Washington,	130	5,460	102	4,612	186	5,722	174	6,255	78	3,487	231	9,513	129	5,407	103	4,612	131	5,512				
Webster, (A,)	200	11,700	215	9,030	552	16,560																
Webster, (B,)	273	12,765	170	6,800	692	18,707																
Welsh,	136	4,080			134	4,020	148	4,282			146	4,380										
West Moshannon,																						
Wise,	149	6,250	109	4,995	272	7,175	170	7,224	47	5,093	208	8,844	203	17,348	103	9,090	408	22,005				
													185	7,749	112	5,152	278	9,160				

TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Beaver,	231	8 325	244	8 784	538	19,350												
Bethel,							275	7 700	275	4,125	275	7,700						
Cascade,	200	9,600	340	8 160	260	10,000												
Church Hill,													78	2,790	55	2,750	253	9,090
Clermont,	115	3,795	108	2 258	338	6 412	120	3,960	110	1 980	350	6 650						
Clinton,	125	9,200	120	7,200	400	12 000	128	9,150	130	7 800	400	12,000	121	8 703	129	7,725	383	11.475
Colerado,	240	10,778	235	12,925	202	11 110	244	10,969	239	13,118	207	11 385	235	10,564	239	13.112	235	11,385
Daguscahonda, No. 1,	358	10.725	265	7.950	387	13 680	363	10.875	271	8.138	481	17,325	161	10,838	271	8 138	481	17.325
Daguscahonda, No. 4,	160	4 800	265	7 950	380	13 680	168	5.025	271	8 138	481	13,430	168	5 025	271	8 138	481	14.438
Daguscahonda, No. 5,	270	8,800	210	4,410	281	8,488	278	8 362	209	4 384	290	8 700	271	8 138	209	4,384	281	8 438
Daguscahonda, No. 6,	238	7,125	180	3 780	355	7.455	264	7.913	189	3,964	223	8,873	259	7,763	178	3,728	384	8 059
Davidson,	119	6 327	75	2,625	176	6,345	121	6.400	71	2,494	175	6,300	131	6,535	71	2 424	180	6 480
Decatur,	111	4 005	171	5 480	185	7,405	101	3,618	144	4,500	154	6,190	93	3,519	142	4 544	146	5,850
Diamond,	95	4,655			200	6,000	93	4,569					86	4,224				
Edenburg,	144	5.164	129	4,644	255	7.650	115	4,140	88	3,181	198	4 356	129	4,635	134	4,815	114	4 686
Eureka, No. 2 (Clearfield,)	379	15,918	203	11,700	370	16 650							380	16,380	355	14 200	420	1,880
Eureka, (Elk,)	233	9,765	150	4,050	400	10,600	208	8,715	123	3 303	220	3,960	203	8,505	170	4,690	205	8.500
Excelsior,	193	10.395	183	11.680	533	19 170	188	10,125	183	11,680	545	19 620	193	10,395	163	10,400	533	19 170
Glenwood,	194	6 782	130	3,380	335	15,410	194	6,781	135	3 510	335	20,100	194	6.795	130	3.405	335	19.100
Goss Run,	176	9 870	196	8,831	376	13 545							181	10 150	236	10,040	385	13 860
Hamilton,	178	14 910			209	15,448	123	11 025	133	5 300	158	12 300	196	17,260	196	7 500	151	14 140
Hardscrabble,	98	5,752	50	4,500	150	6 000	60	5 611	55	5,280	99	3.950	98	5 803	51	4,860	98	3,925
Hickory,	300	9,000	168	7,575	405	9,000	300	6,000	100	5 900	300	9 000	350	7,000	150	6 750	300	9 000
Hillcrup,	288	13,800	244	11,712	288	13 800	290	13,920	213	10,200	290	13,920	290	13,920	219	10 500	290	13 920
Instanter, No. 1,	108	4,173	168	2,258	260	7.020	110	4 235	110	2 310	275	7 425						
Instanter, No. 2,	456	13 688	475	9,975	413	14,438	363	10.875	450	9,450	375	13 125						
Koonce,	313	7,500	308	4 920	293	7.120	304	7.290	204	4,075	274	6,570	333	7,970	305	7,930	315	7 560
Lackawannock,	238	11.880	208	10,418	208	10,400	205	10,250	181	9 955	184	11 210	201	10,046	182	10,036	191	10,114
Lancashire,	222	12 000	90	4 000	600	12,000	200	7,000	125	5,000	450	9 000	160	8,000	100	4 000	250	10 000
Laurel Run,	245	8,330	99	3,555	214	8,550	400	13,600	200	7,200	213	12,500	300	10,200	85	3,060	218	8,700

Lower Hillville,	175	7 875	. . .	. . .	175	7,350	166	7,481	169	7,088	168	7,035	168	7,593	173	7 245	176	7,403
Maple Grove,	115	3,405	96	5,737	393	11,775	200	6,000	83	4,958	393	11 783	173	5,790	76	4,575	376	11,280
Mapleton,	85	6,120	105	7,560	175	8,400	46	5,610	118	4,230	173	8,280	88	6 300	135	4 860	170	8 160
Moshannon, No. 1,	213	11,900	193	8 662	228	10,010		. . .	. . .	. . .		. . .	221	12 390	201	9,056	236	10,395
Moshannon, No. 2,	284	18,160	128	7,140	308	21 465												
New Catfish,	201	9,056			255	9 180	185	8 325	189	7,928	191	6,885	198	8,888	208	8 715	209	7,515
Oakland, No. 3,	99	3,721	233	3,016	196	3,626	156	5,968	341	2,730	254	4,570	135	5,175	330	3,300	179	5,898
Ormsby,	1,500	21,000	. .	. . .	258	35,043	1 500	21,000	100	12,000	147	20,000	1,560	20,000	254	16 000	147	20 000
Pacific,	198	9 480			223	6,450	158	7 560			338	6 750						
Pancoast,	143	5 985	119	5 344	155	6 570	138	5,775	110	2 750	149	6,248	140	5,880	124	5 569	150	6,300
Pardoe,	951	38,050	320	38 400	623	38,003	685	27,400	500	15 000	415	27 400	669	26,750	187	26 740	452	27 194
Penn,	. . .	. . .					140	3,000			150	4 500						
Pine Run,							173	7,245	90	3,780	155	5,425	176	7 403	88	3 675	143	4,998
Rankin,	309	13,905	163	5,044	355	13 697	251	12 036	124	4,031	273	10,515	211	9 506	96	3 057	211	8,028
Red Bank Furnace,	120	8,160	150	9 000	151	9 331	122	4 634	80	3,766	114	6,163	106	7,217	86	4 629	107	6,387
Sandy Lick,	188	8 900	160	7,680	188	9,000												
Soldier Run,	164	13 340	84	9 765	370	14 010	160	13,440	123	10,780	375	13 125	163	12,864	128	11 620	361	12 644
Sterling, No. 1, (A.)	252	36,288	133	13 648	304	36 450	249	36,490	171	20 610	187	37 572	258	37,720	157	18 470	229	39 355
Sterling, No. 2,	199	16,894	113	11,730	208	16,894	132	16 043	78	7 130	140	17 469	203	16 000	105	11 075	151	18,283
Stoneboro',	112	8 040	150	10,000	585	16 087	115	8,316	150	11,770	490	17,640	155	12 536	111	9,550	583	17,475
St. Mary's,	202	10,921	205	9 868	205	11,043	204	11,003	204	9 804	204	11,016	205	11 070	204	9,804	204	11,016
Washington,	126	5 322	104	4 669	124	5 197	124	5,198	103	4,613	133	5,565	135	5,670	106	6 781	185	5 670
Webster, (A,)	248	11 138	205	8 610	538	16 125												
Webster, (B,)	298	13 660	132	5 270	476	12,889												
Welsh,	133	3,975			138	4,125	149	4 455	. .	. . . .	143	4,343	138	4,148			140	4 990
West Moshannon,													303	19,360	223	12 450	438	20,000
Wise,	200	8 400	157	4,069	153	7,686	260	8 360	157	4,069	276	9 116	209	8,757	179	4,641	283	9,331

LIST OF ACCIDENTS *occurring in the mines of the Third Bituminous Coal District of Pennsylvania, for the year ending December 31, 1881.*

DATE	Name of Person Injured.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—county.	Date of investigation.	Nature and Cause of Accident.
Jan. 27	James Fuller,	16	Single,		Morrisdale,	Clearfield,		Killed by a mule.
Feb. 24	John Walton,	45	Single,		Sandy Lick,	Clearfield,		Head and face injured by fall of stone.
Mar. 22	Thomas Mills,	35	Married,		Decatur,	Clearfield,		Body injured by fall of coal.
May 13	Ray Moore,	13	Single,		Hildrup,	Clearfield,		Body injured.
20	Elias Jones,	19	Single,		Hildrup,	Clearfield,		Leg broken.
June 7	John W. Fink,	44	Married,		Soldier Run,	Jefferson,		Leg broken by fall of coal.
15	John Harrison,	10	Single,		Stoneboro',	Mercer,		Arm broken by fall of stone.
17	David Allhouse,	48	Married,		Edenburg,	Lawrence,		Collar bone broken by coal falling while bearing in, coal being insufficiently secured.
July 9	Jerome Weaver,	32	Married,					Three ribs broken; kicked by a mule.
5	Samson Anderson,		Single,					While mining stuck a pick in his foot.
16	Mathias Houser,	37	Single,					He had bored too near the roof, loosening the "draw slate;" and rushing to his room immediately after firing his shot, and before the powder smoke had cleared, the "draw slate" fell upon him, injuring his back.
29	Hugh Forsyth,	29	Married,					Leg broken by fall of coal while bearing in.
Aug. 1	James Young,							Injured by fall of coal.
—	John Anthony,	38	Married,					Knee injured by fall of slate.
15	Matthew Hodgison,		Married,		Pacific,	Clearfield,	Aug. 15	Killed by fall of slate.
16	James Nanearrow,					Clearfield,	Aug. 16	Killed by fall of slate.
22	Charles Yantz,	16	Single,			McKean,	Aug. 30	Killed by fall of slate.
24	John E. Makepiace,	25	Married,					Injured by mine cars.
27	James Proud,	19	Single,					Crushed between mine cars.
May 19	W. H. Fonks,	19	Single,					Foot injured by mine cars.
25	David Maloney,	35	Single,					Shoulder injured while riding on mine cars.
July 19	William Stubs,	19	Single,					Hand injured by mine cars at tipple.
Sept. 6	William Logan,	48	Married,					Shoulder and leg injured by cars.
10	Patrick Gaynor,	12	Single,					Thumb torn off by mine cars.
28	William Chisholm,	20	Married,					Leg injured by mine cars.
Oct. —	Thomas Craig,							Injured by fall of coal.
4	James Hunter,	39	Married,					He was blasting the bottom in an entry, and after charging and firing fuse, retired to a safe distance, but the fuse being faulty, and seeming long before igniting the charge, he returned to examine the same, when the shot was ignited and blew out the tamping, by which he received severe injury on body and face, and lost an eye.

Oct.	18	Andrew Hassell,	25	Married,		Rankin,	Mercer,	Injured by a premature explosion of powder from a shot in mine floor.
Nov.	15	J. A. M. Phillips,	15	Single,		Red Bank,	Clarion,	Killed by fall of rock from roof.
	15	Jacob Getty,	16	Single,				Leg broken by mine wagons.
	19	Joseph Mallet,	25	Married,				Collar bone broken by fall of coal.
	29	William McGinty,	38	Married,	5		Mercer,	Killed by fall of rock from roof.
	30	William Perry,	44	Married,		Decatur,	Clearfield,	Killed by mine wagons.
Dec.	5	William Wadsword,	21	Single.				Leg broken.
	7	Felix Graudy,	55	Married,				Injured by fall of slate.
	14	Peter McAndrews,	35	Single,				Legs broken by mine wagons.
	14	William Tippet,	16	Single,				Leg broken by fall of coal.
	27	John Anderson,	17	Single,				Foot injured by fall of coal.
	27	Mark Giles,	40	Married,				Leg broken.
	29	William Chisholm,	21	Married,				Leg injured by mine wagons.
	9	Sebastian Seybert,				Brady's Bend M. Co.,	Clarion,	Killed on incline plane.

Copy of verdict of coroner's jury in inquest held on the body of Matthew Hodgen, August 15, 1881, in Woodward township, Clearfield county, Pennsylvania.

"The said Matthew Hodgen, while following his usual occupation as coal miner, in Pacific colliery, county of Clearfield, and township aforesaid, came to his death this 15th day of August, A. D. 1881, by the accidental fall of a quantity of rock or stone upon his head and body, injuring him in the head, and breaking his back and legs, and that, by reason of the said injuries, the said Matthew Hodgen then and there instantly died, and so the jurors aforesaid do say."

Clearfield county, ss:

I, John B. McGrath, justice of the peace and *ex-officio* coroner of said county, do hereby certify that the above is a correct copy of the verdict, and an extract from the original inquisition, in said inquest, taken before me the 15th day of August, A. D. 1881.

Witness my hand and seal, the 26th day of August, A. D. 1881.

JOHN B. MCGRATH, [SEAL.]
Justice of the Peace and Ex-Officio Coroner.

COMMONWEALTH OF PENNSYLVANIA,
County of Clearfield, } *ss:*

An inquisition, indented and taken at Houtzdale, Clearfield county, on the 16th day of August, A. D. 1881, before John B. McGrath, a justice of the peace and ex-officio coroner of the county aforesaid, upon view of the body of James Nancar, lying dead in Woodward township, Clearfield county, Pennsylvania, upon the oaths of John Parnell, John T. Maxwell, Alexander Chambers, Thomas Racket, William H. Parnell, and Edward Mills, good and lawful men of the county aforesaid, who, being sworn to inquire, on the part of the Commonwealth, where, when, how, and after what manner, the said James Nancar came to his death, and do say, upon their oaths, that the said James Nancar, while at work in the West Moshannon mines, Woodward township, Clearfield county, Pennsylvania, came to his death this 16th day of August, A. D. 1881, by the accidental falling of a piece of rock, nigh about fifteen hundred pounds, upon his legs, and said rock striking him in the side, causing a large opening, and that, by reason of the said injuries, the said James Nancar languished for about one and a half hours, then died, and so the jurors aforesaid do say: and the said James Nancar, in manner and by the means aforesaid, accidentally, casually, and by misfortune, came to his death. and not otherwise, and that no blame is attached to the owners, operator, or manager of said mine, or to said James Nancar, dead.

In witness whereof, as well the aforesaid *ex-officio* coroner as the jurors aforesaid, have, to this inquisition, put their hands and seal, on the day and year and at the place above mentioned.

John B. McGrath, [seal.]
Justice of the Peace and Ex-Officio Coroner.
John Parnell, [seal.]
Foreman.
John T. Maxwell, [seal.]
Alexander Chambers, [seal.]
His
Thomas × Racket, [seal.]
mark.
William H. Parnell, [seal.]
His
Edward × Mills, [seal.]
mark.

Proceedings of an inquest held before L. Steinhauer, justice of the peace, at Clermont, McKean county, over the body of Charley Yontz:

Louis Yontz, being duly sworn, deposes and says: I live at Clermont, McKean county. I am a miner by occupation. I am the father of Charley Yontz. Charley, my son, left home about six o'clock on the morning of the 22d day of August, 1881. I was at the furnace in the mines at the time my son came in the mine. I had mined about two yards of coal before the boy came in, I then went back to the furnace. I am employed to keep up the fire in the furnace. I had examined the place in which my son worked that morning, and called it safe to work in, and told the boy the same. I also told him to mine a square place or hole in the face of the coal, and set up a prop to secure the roof. I then left the boy at work, and I then went to my work at the furnace. I had not been there more than ten or fifteen minutes when John Swenson, a miner, came and told me that Charley is killed. I then got a light and ran down to where Charley was, I found Charley laying on his right side, and a large stone that was about eight feet long and five or six feet wide and about one foot thick on his left side. I and John Swenson got one half of the stone off from the boy; the boy was dead when I got there; then came John Matterson and Peter Petterson, and we all took the remaining part of the stone off the boy. We, I and Mr. Swenson, took the boy from thence and took him home to my house, in Clermont. William Junk took him there in his wagon. The boy did not put up the props which I told him to. There were plenty of props in his place where he mined. The boy had not got the place or hole mined in which he was to put up the prop. I have been a coal miner about twenty-four years.

Lewis Yontz, [l. s.]

John Swenson, being duly sworn, deposes and says: I live at Clermont, this county. I am a miner by occupation. I work in the mines where Charley Yontz was killed. I worked on the opposite side of the gangway from where Charley worked. The gangway is about eight feet wide. I rode in the mines with Charley on the first trip, about six or seven o'clock on the morning of the 22d day of August, this year. Charley first went to loading cars. Charley was mining at the time the stone fell. I heard Charley halloo or groan three or four times. I then ran to the furnace for the boy's father. I did not try to remove the stone before I went for the boy's father. I then returned to the place where Charley was, with the father. We removed one half the stone that lay on Charley. He was dead when we got there. John Matterson and Peter Petterson then came there, and we all took the remaining part of the stone off from Charley. The stone was about two yards long and one and a half yards wide and one and and a half feet thick. We then put Charley on a wagon and took him outside the mines. We then put him on William Junk's wagon and took him home to his father's house. I and Charley was drawing gangway in the mines. Charley had plenty of props in his place where he worked. Charley was not very careful about setting props. I have worked in coal mines about nine months. The reason I did not try to remove the stone before I went for Charley's father was that the lights were all out.

JOHN SWENSON, [L. S.]

Peter Petterson being duly sworn, deposes and says: I live at Clermont, McKean county. I am a miner by occupation. Am twenty-eight years old. I have worked in coal mines about two years. I saw Charley Yontz the morning of the 22d day of August, 1881, about six o'clock, at the chute of the Buffalo Coal Company's mines. I then next saw him dead under the stone; the door-tender came and told me about the accident, and I went to the place where he had been to work. The stone was on top of Charley. He was dead when I got there. The stone was about two or three yards long and two feet wide and one foot thick. Charley was lying on his right side and the stone was on his left side. I saw some props lying there where he had been to work. After we had the stone off from Charley we put him in a car, and I went with him to the switch, and then I went to my place, where I worked, after my clothes.

PETER PETTERSON, [L. S.]

John Matterson being duly sworn, deposes and says: I live at Clermont, McKean county, Pennsylvania. I am a miner by occupation, and am employed by the Buffalo Coal Company of this place. I work in the same mine that Charley Yontz did, but not in the same gangway. I saw Charley when he was under the stone. The door-tender, Dennis Keating, told me that Charley was killed; then I went to the place and saw him under the stone. Peter Petterson went with me, and we lifted the stone off from Charley as soon as we could. Charley was dead. The stone was about two

or three yards long and two feet wide and sixteen inches thick. Charley was lying on his right side, and the stone was on his left side. We then put him in a mining car and took him out of the mine. I did not notice if the props were sufficient to hold up the top. There was no chance to put up a prop under the stone until he got the coal away. I have worked in the mines over eight years. I am thirty-eight years old.

John Matterson, [L. S.]

Robert Dick being duly sworn, deposes and says: I live at Clermont, McKean county, Pennsylvania. I am foreman of the mines of the Buffalo Coal Company of this place. I do not remember of seeing Charley Yontz the morning of the accident, but saw him dead at his father's house about half past nine o'clock, P. M., of said day. I was at the mines about half past six o'clock that morning, when the men went to work in the mines. I can tell very near who is in and who is not, but not always. I then went home after I had been there about an hour. I went to take the train to Smethport; got in at the water-tank near the coal chute, and came back to Clerm n at one o'clock, P. M., same day. I then went home and changed clothes and went in the mines. The first place I went to was to the place of Charley Yontz, met John Matterson on the way; he told me about the accident. I measured the stone, it was seven and a half feet long, eighteen inches thick, twenty inches wide. There was a slip in the stone from top to bottom. I would consider the place safe to work in if there were two or three props put up in the gangway. I was at the place on Thursday berore the accident, and put up one prop in the gangway, and told him (Charley) to put up some more. He had it propped well under the stone, but not in the gangway. The boy's father wished the boy to work at the heading, for it was convenient for the father to help the boy and see to him from his work. I consider the father a good miner and always careful, and for that reason I let him have that place. The stone was in such shape that any one would be easily deceived in it. There was always sufficient timber on hand for the miners to use for propping up the top. There was some props in his (Charley) place at the time of the accident.

Robert Dick, [L. S.]

An inquisition indented and taken at Clermont, in the county of McKean, the 31st day of August, A. D. 1881. Before me, L. Steinhaur, a justice of the peace in and for the said county, upon the view of the body of Charley Yontz, upon the oaths of James Sullivan, William Junk, D. L. Keef, Ed. Keltz, Lars Holumburg, and Pat Gayner, six good and lawful men of the county aforesaid, who, being sworn to inquire on the part of the Commonwealth when, where, how, and after what manner the said Charley Yontz came to his death, do say, upon their oaths, that on the 22d day of August, A. D. 1881. on or about the hour of seven, in the forenoon of said day, in the coal mines of the Buffalo Coal Company at Clermont, while in the act of mining it so happened that accidentally, casually, and by misfortune, a stone, being seven and a half feet long, eighteen inches thick, twenty inches

wide, which, being direct over said Charley Yontz, fell down and upon said Charley Yontz, killing him instantly, and so the jurors aforesaid do say; and the said Charley Yontz, in the manner and by the means aforesaid, accidentally, casually, and by misfortune, came to his death, and not otherwise.

In witness whereof as well, the said justice of the peace, as the jurors aforesaid have to this inquisition put their hands and seals, on the day and year and place first above mentioned.

L. STEINHAUR, [SEAL,]
Justice of the Peace.
JAMES SULLIVAN, [SEAL,]
WILLIAM JUNK, [SEAL,]
D. L. KEEF, [SEAL,]
ED. KELTZ, [SEAL,]
LARS HOLUNBURG, [SEAL,]
PAT GAYNER, [SEAL.]

STATE OF PENNSYLVANIA, } ss:
County of Clarion, }

An inquisition indented and taken at Red Bank coal mine, in the township of Madison in the county of Clarion, on the 16th day of November, A. D. 1881, before me, R. R. McGregor, a justice of the peace, upon the view of the body of James A. M. Phillips, then and there lying dead, upon the oaths of W. S. Burns, John Devore, Michael Kerr, George King, William Yates, and David Pyles, good and lawful men of the county aforesaid, who, being sworn to inquire, on the part of the Commonwealth, when, where, how, and after what manner the said James A. M. Phillips came to his death, do say, upon their oaths, that the said James A. M. Phillips came to his death from the effects of being crushed under a fall of rock, while at work in the Red Bank coal mine, on the 15th day of November, A. D. 1881, and we further find that the fall of the rock was attributable to a lack of proper posting on the part of the deceased.

In witness whereof, as well as the aforesaid coroner, as the jurors aforesaid, have to this inquisition put their hands and seals, the day and year at the place first above mentioned.

R. R. MCGREGOR, [SEAL,]
Coroner.
W. S. BURNS, [SEAL.]
JOHN DEVORE, [SEAL.]
MICHAEL KERR, [SEAL.]
GEORGE KING, [SEAL.]
WILLIAM YATES, [SEAL.]
DAVID PYLES, [SEAL.]

Evidence taken at the inquest held on the body of James A. M. Phillips, at Red Bank coal mines, November 16, 1881:

Samuel W. Phillips, (sworn.) I am a brother of the deceased. He was fifteen years old. I am older than him. We went into the mine to dig

coal yesterday. I bore in awhile, and then knocked down part of car, and took down some slate, and threw it back, and then we went to eat our lunch. The slate had broken back in the rib, and was all shattered. The deceased took a sledge to knock out a post. He knocked down the post, and the draw-slate fell. I saw rock giving away, and hallowed to him to look or get out, but, before he could get out of the way, the rock fell on him. I called to those working nearest us, and Messrs. Peters, Bealout, and McGee came, and helped me to get him out. He was dead when we got him out Samuel Clark is pit boss. This rock came down in the roadway. There were plenty of posts furnished by the furnace company. It was an accident. Such an accident could not be guarded against. There is no blame to be attached to the company or pit boss. I was sitting against the face of the coal. He was backing toward me when he was caught by the falling rock. He was crushed down, with his head between his feet.

George Peters, (sworn.) I was working in the mine at the time of the accident. I was called, and came to the Phillips boys. Found James under a fall of rock. I tried to get the rock off him, and could not. Called Bealout and McGee, who came, and we got him out from under the rock. He was dead. Think the rock would weigh three tons. It broke when it fell. He must have been killed instantly.

E. M. Bealout and William McGee were sworn, and corroborated last witness.

R. Robinson, M. D., (sworn.) (The surgeon called in the inquest.) I find the deceased has his left leg broken—a deep cut over right. Think he was crushed internally. The wounds would cause death. He must have died instantly.

R. R. McGregor,
Justice of the Peace, acting Coroner.

State of Pennsylvania, }
Mercer County, } *ss:*

An inquisition taken and indented in the county of Mercer, state of Pennsylvania, on the 29th day of November, 1881, before W. M. Frew, one of the justices of the peace in and for said county, upon the view of the body William McGinty, upon the oaths of six good and lawful men of the county, who, being sworn to inquire, on the part of the Commonwealth, when, where, how, and in what manner the said William McGinty came to his death, do say, upon their oaths, that the said William McGinty, on the 29th day of November, 1881, in county aforesaid, while at work in coal mine of Westerman, Filer & Co., in Pine township, it so happened, accidentally and by misfortune, the roof of said mine fell upon him, and crushed him in such a manner that the said William McGinty then and there in-

stantly died, and so the coroner, as well as the jurors aforesaid, do say that the said William McGinty in manner and by misfortune came to his death, and not otherwise.

W. M. FREW,
Justice of the Peace, acting Coroner.
SAMUEL ALLEN.
LAWRENCE WOLF.
ALBERT MCELHENY.
WILLIAM BANISTER.
H. MOORE.
W. BLAIR.

Inquisition of Sudden Death.

COMMONWEALTH OF PENNSYLVANIA, }
Clearfield County, } *ss:*

An inquisition indented and taken at the Decatur coal mines, Clearfield county, State aforesaid, the 30th day of November, in the year of our Lord 1881, before Jacob Mock, justice of the peace of the county aforesaid, upon the view of William Perry, lying dead on a lounge, upon the solemn oaths of Jerry Riley and John Todd, good and worthy laborers, and upon their solemn affirmation, on the part of the Commonwealth, say this man William Perry came by his death by his own carlessness in getting on the car near the mouth of the drift while driving mules at Decatur mines. They further say it was no fault of any of the employers, and the said jurors all agree and say it was an accidental death, and no other person's fault.

In witness whereof, as well as the justice and jurors, have, to this inquisition, put their hands and seals, the 30th day of November, 1881, at Decatur mines.

WILLIAM J. ROGERS,
GEORGE HICKS,
JOSEPH RILEY,
HIRAM HARRIS,
JOHN T. LAME,
J. F. MOCK,
Jurors.
JACOB MOCK,
Justice of the Peace.

STATE OF PENNSYLVANIA, }
County of Clarion, } *ss:*

An inquisition indented and taken at East Brady, in the county of Clarion, on the 9th day of December, A. D. 1881, before me R. R. McGregor, one of the justices of the peace for said county, upon the view of the body of Sebastian Seybert, then and there lying dead, upon the oaths of Thomas Thorn, Patrick Garry, Peter Schott, Daniel Garry, B. F. Smith, and Charles J. Zesky, good and lawful men of the county aforesaid, who being sworn

to inquire, on the part of the Commonwealth, when, where, and how and after what manner the said Sebastian Seybert came to his death, do say, upon their oaths, that the said Sebastian Seybert came to his death on the morning of the 9th of December, 1881, before daylight at the incline of the Brady's Bend Mining Company, being in an ascending coal car which had been sent up the wrong track, and which collided with a descending loaded car, and which ascending car became attached from the cable and carried the said Sebastian Seybert down the incline and through the tipple-house and into a boat at the river and killing the said Sebastian Seybert, and that he died from wounds cut in his head, and his breast was crushed in in the collision and being carried over the tipple; and we further find that said accident was the result of careless misplacement of the incline rope or cable by some person or persons to the jury unknown.

In witness whereof, as well as the aforesaid coroners as the jurors aforesaid, have, to this inquisition, put our hands and seals, this 12th day of December, A. D. 1881, at the place first above written.

Daniel Garry, [seal.]
Peter Schott, [seal.]
Charles J. Zesky, [seal.]
Thomas Thorn, [seal.]
B. F. Smith, [seal.]
Patrick Garry, [seal.]
R. R. Gregor,
Coroner.

FOURTH DISTRICT.

Hon. AARON K. DUNKEL,

Secretary of Internal Affairs:

SIR: Having been appointed inspector of mines for the Fourth Bituminous District of Pennsylvania, comprising the counties of Bradford, Sullivan, Tioga, Lycoming, Clinton, Potter, Centre, Huntingdon, Blair, and Cambria, I have the honor to submit to you my first annual report as to the condition of the mines in the above named counties.

During the past year the state of trade in the district has been exceptionally good; in fact, I believe the output of coal has been larger this year than any previous year, and but for a scarcity of cars in most parts of the district, the output would have been considerably larger.

With the exception of a strike of six weeks duration at South Fork, Cambria county, the relations of employers and employed have been of the most cordial kind.

In visiting the mines I found some of them in good and others in poor condition. Those in poor condition being dependent on natural ventilation and having very few, if any, doors or bratticing to guide the feeble current that was circulating in the mine in the required direction.

Another very common mistake was in driving the headings too far ahead of the air current.

Mines of this class, I found, were generally leased by men who had not had much training in working a mine, consequently the works were very badly cut up, the gangways being driven in all directions and the rooms turned off at random, the pillars in some places being very thick and in others very thin, and no provision being made at all for the withdrawal of the pillars upon completion of a section of the work.

It is very sad to think of the coal that is left in some of these mines, which, if the mine had been opened out and worked in a proper manner, could have been taken out.

Now, this is entirely wrong, for the coal mines of this State are not going to last forever, and it is very poor reasoning to say that because there is an abundance of coal the little that is left in the mines will never be noticed. The time will come when it will be wanted, and it is the duty of the State to see that so valuable a commodity as coal is not needlessly wasted.

Then the question naturally rises, how is this to be done. I answer, by the State passing such a law or laws, requiring those having charge of mines to pass an examination before an examining board, showing that they are capable of working a mine in a proper and scientific manner, and also that they understand how to ventilate a mine properly.

Nearly ten years ago the British Government passed an act requiring that all mining bosses should pass an examination before they could receive a certificate, showing that they were fully competent to assume the charge of a mine.

I quote the following abstract of the examination questions put to the applicants, by the examining boards in England, from the annual report of Andrew Roy Esq., inspector of mines for the State of Ohio.

Certificated English Managers.

The following qualifications are required on the part of applicants presenting themselves for examination, viz:

Applicants must be above twenty-one years of age and must have had either: 1. Two years' experience underground in any capacity; or, 2. Have served three years in a mining engineer's office, and have been engaged in the active survey of pits and making plans; or, 3. Have been employed as a mechanic at a mining establishment for two years, and have been, during the eight months immediately preceding their application, employed underground acquiring a knowledge of mineral workings.

The subjects of examination are the following, viz: Written examination, applicants requiring to count on:

1. Mines regulation act, 1872, general knowledge of	20
2. Ventilation, theory, and practice,	80
3. Sinking, fitting, and pumping,	40
4. Winding and haulage,	40
5. Modes of working coal, iron, stone, or other mineral, having reference to the nature of roofs and pavements, and setting of the workings of a new pit,	80
6. Surveying and drawing,	60
7. Arithmetic up to vulgar fractions, including calculation of areas and velocities,	40
Maximum number of marks,	360

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The following are some of the questions, selected at random, which have been prepared by the examining boards:

Explain the ordinary conditions for adopting the long-wall and pillar and room working.

Draw a free hand sketch, or describe the mode you would adopt in laying out the workings of a colliery from the pit-bottom, giving the dimensions and showing ventilation by arrows.

Explain the difference between pillar and room and long wall workings, more especially as relates to their ventilation, timbering, and production of coal.

What is ventilation, and why is it required in mines?

Describs the method of measuring the air of mines by means of powder smoke, and by an anemometer.

What is the cause of the friction of air in mines?

How does friction increase or decrease?

How does splitting the air affect the quantity passing through a mine?

What is the meaning of the pressure of the air?

How does the pressure of the atmosphere affect the velocity of the mine currents?

State the rule for finding the weight of a column of air.

What is fire damp, and what are its component parts?

What other gases besides fire damp are met in coal mines?

Give an account of the nature and properties of the various gases of coal mines.

Explain the principles of a safety lamp.

Explain the uses of the barometer and thermometer in mines.

What is a water-gauge, and for what purpose is it used in mines?

Describe the best method of walling, timbering, and tubbing a shaft.

Describe the best method of sinking the quicksand.

Explain the action of a syphon, and its use and application in draining mines.

State the various methods of pumping water out of mines.

Write a short essay on the daily operations of a colliery in full operation."

Such are the questions put to the men who seek for a certificate as managers, in England, and we must concede that the man who gets the maximum number of marks, understands his business, and while it is not necessary that a miner in the bituminous regions of Pennsylvania should be subjected to so strict an examination as the above, yet, as I have before said, he ought to pass such an examination as would show that he was fully competent to carry out the provisions of the ventilation act of 1877.

It was with the idea that our legislators might see fit, in the near future, to make an amendment to the ventilation act of 1877, that, in my circular to the operators of this district, that I put the following question as to whether they were in favor of such a law, "requiring all mining bosses, who had not been employed as such for three years, successively, to pass an examination, showing that they are capable of working a mine on correct mining principles, and thoroughly understand their business."

On looking over the answers to this question, I find that ninety-eight per cent. answered in the affirmative, and two per cent. in the negative.

The effect of such a law would be to bring to the front a class of men who would be able to carry out the law in a better manner than it is now carried out, and it would be to the interest of the operator, as well as to the employed, to have intelligent men to oversee their mines, and work them to the best advantage.

Improvements during the Year.

Berwind, White & Co., of Snow Shoe, Centre county, have put in a new drift during the year, and opened up a seam of excellent coal three feet in thickness. They have also put in a new ventilating furnace in each drift.

Robert Hare Powell has opened a new mine, located about three miles from Powellton, Centre county. He has also built a number of houses for the men employed there, and everything looks in first-rate order. He is also reopening an old mine at Minersville, Huntingdon county, and is also building one hundred and fifty Belgian coke ovens close to the mine. His intention is to use the product of the mine in making coke for his new iron works, at Saxton, on the Huntingdon and Broad Top railroad.

S. C. Baker & Co. have opened a new mine at the Horse Shoe Bend, Blair county, and are in a good seam of coal four feet in thickness. The bulk of the coal produced here is used in making coke.

The Glen White Coal Company, on the opposite side of the hill from Baker's, have also put in a new drift, and just got to the coal, and are now opening out the same.

Denniston, Porter & Co., of Bennington, Blair county, during the year, have built chutes for the storage of their coal; capacity, three hundred tons.

The Standard Coal Company have opened a new mine, and built three quarters of a mile of narrow gauge track and a new tipple, at Lilly's Station, Cambria county. The seam they are working is the same as the one now being worked at Bennington.

Caron Leahy, of Lilly's Station, has put in a new drift this year, so as to strike the vein at a higher point; he has also put down a shaft, which will be used for ventilating purposes.

J. C. Stineman, of South Fork, Cambria county, has laid eight hundred feet of railroad track to his new opening, and will soon be able to commence shipping from it.

The Argyle Coal Company, also of South Fork, have opened their new mine and built an incline plane and tipples, and are now shipping quite a large amount of coal.

Luke & Heist have also opened a new drift on the same seam of coal as the Argyle Coal Company, and have also built an incline plane.

The State Line and Sullivan Railroad Company, of Bernice, Sullivan county, have opened a new drift, and are now in good coal, but are troubled very much with water, on account of the drift going to the dip.

They have also commenced working the Jackson property which adjoins their own, and have quite a large number of men at work. They have also built one mile of railroad track to the new drift.

The McIntyre Coal Company, of McIntyre, Lycoming county, have put in a new drift, and also sunk two shafts, one of which is for ventilation, and the other for pumping.

The Great Bend Coal Company, of Bellwood, Blair county, have opened a new mine about two miles from Loydsville, on the Bell's Gap railroad, and are now shipping quite an amount of coal.

On the 2d of January I sent out a circular to the operators requesting the number of mines operated by them, the number of men employed, the number of tons of coal produced, &c., &c. A little over half of them answered, and the rest took no notice of the request.

From the answers received, I make out the following table:

Number of mines operated in 1881,	61
Number of persons employed, inside,	4,615
Number of persons employed, outside,	1,182
Total number employed,	5,797
Number of mules and horses employed,	638
Number of engines,	32
Number of boilers,	42
Number of pumps,	24
Average number of days worked in 1881,	244
Average price paid per ton during 1881,	53.33 cents.
Estimated productions in tons during 1881,	2,908,219 tons.
Number of coke ovens in operation during 1881,	330
Number of new mines opened during 1881,	9
Number of fatal accidents during 1881,	7
Number of non-fatal accidents during 1881,	36
Total number of accidents during 1881,	43
Number of tons produced per each fatal accident,	415,690
Number of tons produced per each non-fatal accident,	80,783

Accompanying this report you will find the following tables:

Table I, showing the location of the mines and the post-office address of the superintendents in the district.

Table II, showing characteristics, number of employés, &c.

Table III, showing the method of ventilation, amount of air discharged &c.

Also, a list of the fatal and non-fatal accidents that occurred during the year 1881.

EXAMINATION OF MINES.

Barclay Mines.

Mines located at Barclay, Bradford county. Operated by the Towanda Coal Company. Frank F. Lyon, general superintendent; Thomas Ditchburn, superintendent of mines.

Four drifts in operation, capable of producing from one thousand to twelve hundred tons of coal per day. Mines worked on the double-heading plan, and ventilated by furnace.

These mines have been in operation for over twenty years, and at present are shipping a large amount of coal. In No. 1 drift there is nothing but pillar work. In No. 2 there are two gangways being driven, the balance of the work being rooms and pillars. In No. 3, or new drift, there are quite a number of headings being driven, but the bottom coal is not very good at present. In No. 4 drift, which has been re-opened lately, there are two or three headings going, one of which has struck a fault, and to get the coal that lies beyond the fault, they will have to drive through it.

The ventilation was good, the doors and bratticing being in good condition, and the drainage of the mines very good.

Carbon Run Mines.

Two miles west of Barclay are the Carbon Run mines, operated by the Schraeder Coal Company. R. A. Abbott, general manager; William Williams and William Jones, inside bosses.

At present there are three drifts in operation, one of which consists only of pillars, and employs only a few men. In the other two drifts the work consists of rooms and pillars. The ventilation of these mines is good, there being very good furnaces in operation. The mines are in good order, so far as doors, brattieing, and drainage are concerned.

These mines have been in operation about ten years, and in that time have produced a large amount of coal. By the exercise of due care and attention there will be no trouble to be found in these mines.

Long Valley Mine.

Located at Long Valley, three miles east of Barclay, Bradford county. Operated by James Macfarlane. Graham Macfarlane, mining engineer; John Carroll, superintendent of mines.

This is a new work, having been in operation about eighteen months, and is worked on the single-heading plan, and ventilated by furnace. In driving the main heading they have had considerable trouble, in the way of faults, but now seem to be getting into better coal. They have also made connection with a shaft that they put down, and are getting their mine into very good shape. The coal is of a very good quality, and is used for steam purposes.

All the arrangements around the mine are first class in every respect, and shows that no expense has been spared in opening this work, and although they have worked in the face of a great many difficulties, we trust that their perseverance will be amply rewarded.

Antrim Mines.

Mines located at Antrim, Tioga county. Operated by the Fall Brook Coal Company.

Anson Hardt, general mining engineer; Thomas Farrer, superintendent; Thomas Gaffney, mine superintendent.

The mines have been in operation about ten years and are very extensive, worked on the double-heading plan, and ventilated by furnace; ventilation good, there being very good furnaces in operation.

There has been considerable trouble in draining this mine, but now the difficulty seems to be overcome as they have made a very good water-course at considerable expense.

On account of the long distance to haul the coal they have put in a mine locomotive which does a great amount of work, and at the time of my visit they were making preparations to put in another locomotive.

The ventilation of the locomotive tunnels is entirely distinct from the ventilation of the mining part and acts very well.

Taking everything into consideration the mines are in good condition.

Arnot Mines.

These mines are four miles south of Blossburg, Tioga county, and were lately owned and operated by the Blossburg Coal Company, but have now passed into the hands of the New York, Lake Erie and Western Railroad Company. Henry J. Landrus, general manager.

This is one of the greatest mining towns in this part of the State. The mines are very extensive and worked on the double-heading plan, and ventilated by furnace.

At present there are four drifts in operation, one of which is located about two miles from the town and is reached by a narrow-guage railroad. In the lower drift I noticed that the trouble referred to by Mr. Richards in his last report, had not been remedied, namely, changing the furnace from the foot of the hill to the top. If this was done there would be no trouble in ventilating this mine, as the inlet on the top of the hill is so much higher than the other, and if the furnace was placed there it would give a steady current all the time.

The mine is well laid out for ventilation, and if the furnace was changed there would be no further trouble.

An examination showed that there was a pretty fair current circulating around the face of the work.

This company have in operation one of the largest coal washers in the State, and over two hundred coke ovens in operation. Altogether Arnot is one of the largest and busiest mining towns in this State.

Fall Brook Mines.

Mines located at Fall Brook. Operated by the Fall Brook Coal Company. Anson Hardt, general mining engineer; Frederick Wells, superintendent of the mines.

The plan of the mine is double-heading and ventilated by furnace. Two drifts in operation, one of which is all pillar work, and consequently it is very hard to keep it properly ventilated owing to its breaking to the top. The other drift was in good condition, and they were driving a gangway, which, when completed, will materially aid the ventilation by shortening considerably the distance the air has to travel. The plan of working the mine is very good, and everything is in very good shape.

Fall Brook mines for the last few years have worked very little, but now they are employing about one hundred and fifty persons. The coal is of good quality, and the area of the coal field is large.

Morris Run Mines.

Operated by the Morris Run Coal Mining Company. W. S. Nearing, mining engineer; William Gilmour, mine superintendent.

There are three drifts in operation, worked on the double-heading plan, and ventilated by furnace.

The mines are very extensive, and have been in operation for over twenty years, and at present are capable of producing two thousand tons per day,

but for quite a number of years they have not been run to their full capacity. There are in operation two air compressors, which, besides working two pumps in the mine, work an engine which pulls up six cars at a time from the foot of an incline plane, and also work from two to four coal cutters at the same time.

In the other drift there is in operation an endless wire rope, which is a complete success in every respect, and it would be worth the while of any operator, whose mine is favorable for introducing the endless wire rope, to examine the one in operation at Morris Run.

The mines in Morris Run are in good order, and show that no expense is spared in introducing new features in mining. If all our mining engineers were as progressive as Mr. Nearing, we should soon have a great change in the working and producing of coal.

Bernice Mines.

Located at Bernice, Sullivan county. I. O. Blight, general manager; Richard Woodward, mine superintendent.

Three drifts in operation at present, one of which has been lately opened, and is now in a good body of coal. The others have been worked for quite a long time. The vein is very irregular, and, consequently, they are troubled more or less with water.

The new drift will strike the vein at a lower point than the present workings, and will afford good drainage. The plan of working is single and double headings, and room and pillar. There is a good furnace in operation, located at the highest point, and it seems to work very well.

This company has had a great many difficulties to contend with, but now seems to be getting along all right.

An examination of the mine showed a good current of air moving around the face of the work, and the mines, taken as a whole, are in good shape.

McIntyre Mines.

These mines are on the Williamsport and Elmira branch of the Northern Central railway. Operated by the McIntyre Coal Company. G. H. Platt, general manager and engineer; Thomas Blyth, mine superintendent.

At present, there are four drifts in operation, two of which are mainly pillar work, and are being withdrawn. In the other two drifts there are quite a number of headings being driven. The plan of the work is double-heading, and furnace ventilation. Everything is in very good order, the doors and bratticing being well looked after, and the ventilation was very good.

This is a very extensive works, over three hundred miners being employed. The vein is thin, but of very good quality, and is used largely for steam purposes. The mines have been in operation about twelve years, and have been very productive.

Snow Shoe Mines.

At the terminus of the Bellefonte and Snow Shoe railroad, Centre county, are the Snow Shoe mines, operated by Berwind, White & Co. Peter Cameron, mining engineer; George Ramsey, mine superintendent.

Mines worked on the double-heading plan, and ventilated by furnace. Three drifts in operation, and a fourth one being opened. Since Mr. Ramsey took charge of the mines, he has improved them considerably. He has put in two new furnaces, and is trying to make square work. He is determined to have his mines as good as his neighbors, and, from present appearances, he will soon have them in good order.

There are about sixty coke ovens in operation, and they produce a good grade of coke. The coal is of very good quality, and ranges from three to five feet in thickness. About one hundred and fifty miners are employed here. Snow Shoe has borne a very hard name in times past; but, under the present management, we hope for better things. With proper care and attention, there should be no cause for complaint, so far as ventilation is concerned.

Black Diamond Mine.

This mine was formerly known as Powelton mine, owned by Robert Hare Powell, W. J. Jackson, lessee and general manager; W. J. Young, mine superintendent. Worked on the single heading plan, and ventilated by furnace.

An examination of the mine showed that while the ventilation was not really bad, yet there was considerable room for improvement. The furnace is located quite a long way from the working part of the mine, and is surrounded by open work.

They were driving a gangway which was expected to open up some new coal, and were very much troubled with water.

Since the present parties have taken hold of it they have cut the work up pretty badly, so that it is not at all easy to keep the air current in the regular course.

This mine has been in operation quite a long time, and is located on the Clearfield and Tyrone railroad in Center county.

Sterling Mine.

This mine is known as Sterling, No. 3. Located about three miles from Powelton, Centre county. Operated by Robert H. Powell; James Campbell, general manager; Daniel Campbell, mine superintendent.

This is a new work, no coal having been shipped at the time of my visit. Will be worked on the double-heading plan and ventilated by furnace. The coal is of good quality, and ranges from four to six feet in thickness. The mine looks in good condition for working, and the outside arrangements are excellent.

Fulton Mine.

Located at Minersville on the line of the Huntingdon and Broad Top railroad, one mile from Dudley. Owned and operated by R. H. Powell; Edward McHugh, mine engineer; Scott Read, mine superintendent.

This is a work that was abandoned years ago, and is now being opened afresh. At the time of my visit the ventilation was very poor, there was a shaft down, and all ready for a furnace. I requested Mr. McHugh to put in a furnace as soon as possible, and he promised to do so.

This furnace will only be temporary, however, as the intention is to drive a gangway to the rise, and near the outcrop to put down a shaft, and locate the furnace there.

Mr. Powell is building one hundred and fifty Belgian coke ovens near this mine, and intends to supply them from this mine. He has also very large iron works at Saxton, about four miles from Powelton. From present appearances, it looks as though these deserted mining villages will wake into new life again.

Ocean Mine.

Ocean mine is located at Dudley, on the Huntingdon and Broad Top railroad. Operated by Sweet & Co. J. H. Sweet, superintendent of mine.

Worked on the single-heading plan; natural ventilation. Mr. Sweet has put in a rock tunnel at considerable expense. The vein is thin but the coal is very pure, and is used for steam purposes.

I found, on examination, that there was not enough air circulating around the face of the work. I called the attention of Mr. Sweet to the fact, and requested him to put in a furnace, as there is a very good shaft down, and then he would have a good current at all times. This is a very old mine, the workings extend for a long way down the hill, and I have not the least doubt but that in winter time there is an abundance of air, but, with a small furnace, there would be no occasion for fault finding.

There are not many men employed at this work, and it is not at all steady.

Moredale Mine.

Located at Moredale, one mile from Dudley, Huntingdon county. Mine operated by Reakirt Bros., of Philadelphia. David E. Conrad, general manager. James Williams, mine superintendent.

Worked on the single-heading plan; natural ventilation.

I found here the same fault as found at many other places, namely, driving too far ahead of the air-current. Although it was quite an unfavorable day, there was an abundance of air coming through the old workings, which extend all the way from here to Broad Top City, yet it was lost before it arrived at the face of the work. I requested Mr. Conrad to get the air-ways nearer the face of the work, and also to put up some brattieing.

There is a gangway being driven to the old workings, which, if once through, would shorten the distance the air has to travel considerably. This firm have been working under considerable difficultie . The vein is very thin, and a great deal of rock to contend with. In some places the coal pinches down to a few inches in thickness, and the headings are all in the rock. They are in expectation of striking a better body of coal further under the hill.

The Messrs. Reakirt deserve much credit for working under such difficulties, and are deserving of success.

Fisher Mine.

Located about one fourth of a mile from the Moredale mine, Moredale, Huntingdon county. Operated by the Reed Brothers. Scott Reed, mine superintendent.

The work is small and there are not more than twenty miners employed. Worked on the single-heading plan.

There is a small furnace here, but it was not in operation. I requested Mr. Reed to put the furnace in operation, and also to put up some bratticing, to keep the air current together. With proper attention to doors and bratticing in this mine, there will not be much difficulty in supplying the number of men employed here with a sufficient quantity of air.

In the small mines it is very hard to get anything done in the way of improvements, as the mines are leased for short periods of time, and consequently the lessees will pay no more than they are really obliged to.

Carbon Mines.

Mines located at Broad Top city. J. F. Mears, general manager; Harvey Mears, mine superintendent.

There are two drifs in operation, one of which is almost worked out. In the other, Mr. Mears has put in a new opening, and followed the course of the old main heading for quite a long distance, and is now working a body of coal that was left years ago. He has sunk a shaft to the vein, which, at present, supplies him with an abundance of air, of which there was a very good current coming through the cross-cut, near the face of the heading. He is now driving toward a shaft that was put down years ago by the Broad Top Improvement Company, and he intends to locate his furnace at this point.

The ventilation of this mine is excellent, and shows that much care is bestowed on the air-ways, and the comfort of the men attended to.

Robertsdale Mines.

These mines are located at the terminus of the East Broad Top railroad, Huntingdon county. Operated by the Rockhill Iron Company. A. W. Sims, general manager; James Findley, mine superintendent.

There are two drifts and one shaft in operation, worked on the single-heading plan, and ventilated by furnace. The vein lies very uneven, and is difficult to work. There are two seams of coal, with a strata of very hard rock between them. This rock ranges from two to four feet in thickness, and in driving headings, the air-way is driven in the upper seam, and holes cut through the rock every twenty feet. In working the rooms, the rock is allowed to stay up until the room is worked up the required dis-

tance, and then the rock is blasted down and the upper seam worked. The furnace in No. 3 drift is too far away from the face of the work to be at all effective. In some places the ventilation was not good, but means were being taken to have it remedied.

Rolling-Mill Mine.

Mine located at Johnstown, Cambria county. Operated by the Cambria Iron Company. John Fulton, general mining engineer; John Cameron, superintendent of mines.

This mine is opposite Johnstown, and the coal is used in the large works of the company, just across the river from the mine. On account of the long distance to haul the coal, the company put in a first-class locomotive, which hauls the coal through a tunnel for a distance of one mile and a quarter. (For description of tunnel and Murphy fan, see Inspector Richards' Report for 1880.)

The plan of the work is single-heading; ventilation by fan. The ventilating current, after leaving the fan, is split into two currents, one of which goes to ventilate the working part of the mine, and the other goes direct to the tunnel.

The work is in very good shape, and shows that much care and attention is bestowed on the work, no expense whatever being spared, but everything is done to make the mine first class.

Cushon Mine.

This is a small mine, located a short distance from Johnstown, under the same management. Worked on the single-heading plan, and ventilated by furnace. The coal from this mine is used in the company's works, and also for coking purposes. Everything in this mine was in good order, an ample amount of air circulating around the face of the work.

Conemaugh Mine.

This is also owned and operated by the Cambria Iron Company, and under the same management, and is located about two miles from Johnstown, on the main line of the Pennsylvania railroad.

Worked on the single-heading plan, and ventilated by furnace. There were, at the time of my visit, only about twenty miners employed, and the coal is used in the coke yard, and at the Conemaugh furnace. The ventilation of the mine was good, and the general condition of the mine very satisfactory.

New Argyle Mine.

Mine located at South Fork, Cambria county, on the main line of the Pennsylvania railroad. Operated by Coulter & Huff. J. P. Wilson, superintendent of mine.

This is a new work, and the main heading is not driven very far. The plan of working is single-heading, and room and pillar. The coal is about

four feet in thickness, and perfectly clean. There is a very good shaft down, and the intention is to put in a furnace. I found here the common fault of driving too far ahead of the air current, and requested Mr. Wilson to get the air-ways closer to the face of the work. The coal from the mine is let down an inclined plane, and then it is only a short distance to the tipples beside the railroad track. All the arrangements are good, and if the superintendent will not allow them to drive ahead of the air current there will be no trouble in this mine. During the summer all the miners at South Fork were out on strike, and at the time of my visit they were just commencing work again.

Aurora Mine.

Operated by Luke & Heist. D. W. Luke, mine superintendent. Mine worked on the single-heading plan. Natural ventilation.

The condition of the mine was not very good, there being no doors or bratticing to guide the air through the mine. I requested Mr. Luke to put up some doors and bratticing, and he promised to do so. With care and attention the mine could be made first-class. This mine is on the same vein as the New Argyle, and the coal is let down the mountain by an inclined plane. At the time of my visit there were only seven or eight men at work, and the amount of coal shipped was very small. This company only commenced to ship coal this year. The arrangements around the plane and tipple are very good.

Euclid Mine.

Operated by the Euclid Coal Company. S. S. Paull, mine superintendent. Mine located at South Fork, about one half mile from the main line of the Pennsylvania railroad.

The mine was in very poor condition; not much air circulating around the face of the work. I requested Mr. Paull to make room at the foot of the shaft and put in a small furnace, as it would not require a large one, as the mine is small and not very many men employed. This mine is not at all steady, but stops and starts as the coal trade languishes and revives.

Steinman Mine.

This mine is on the same vein as the Euclid. Operated by J. C. Stineman, who is also the manager. There is no system whatever in the working of this mine. Gangways being driven in every direction, rooms turned off at all angles, some to wide, and some very narrow, and the pillars of an uneven thickness. I spoke to Mr. Stineman about getting his mine into better shape. He promised to do so, and also to put in a furnace. He is going to put in a new drift, and will have a better chance to work his mine aright.

South Fork Coal Mine.

Operated by the South Fork Coal Company. George B. Stineman, gen-

eral manager. Worked on the single-heading plan, and natural ventilation.

This mine goes to the dip very much, and is troubled a great deal with water. They have a small steam pump in operation. On examination, the ventilation was not very good, and while there was an abundance of air coming down the shaft, for want of bratticing it was not going where it was most needed. Mr. Stineman said he would have some bratticing put up immediately, and then there will be ventilation enough for the men that are employed here.

On the whole, the mines at South Fork are not in as good order as I would like to see them. All the mines here are leased, and the operators are not willing to spend money in the improvement of their mines.

Summerhill Mines.

About half way between South Fork and Summerhill are the mines of the Summerhill Coal Company. Stephen Dimond, general manager. Two drifts in operation, one of which is in but a short distance. The other mine was in quite a long distance, and the ventilation of it was very good, and the mine was in very good shape. The plan of the work is single-heading; natural ventilation. The coal is of very good quality, and nearly four feet in thickness.

Since my visit to these mines they have driven an opening through to the outcrop in the little drift which materially aids the ventilation.

Martin Mines.

Operated by J. C. Martin & Co. David Patrick, general manager. The mines are located about two miles from Portage, and are reached by a branch road from the Pennsylvania railroad.

There is a very large field of coal here, and Mr. Martin has just put in one drift, and was commencing another when I was there. In No. 1 mine they had met with a very bad fault, and it was causing them quite a deal of trouble, but now they have overcome the difficulty and hope to get along all right. After they once get their mines opened out they will be able to ship quite a large amount of coal.

Souman Mines.

These mines are located at Ben's Creek, about half a mile from the Pennsylvania railroad. Operated by W. H. Piper & Co. John Leahy superintendent of mines. There are two drifts in operation, worked on the single-heading plan, and ventilated by furnace.

No. 1 mine has been in operation about ten years, and the workings are very extensive. The furnace is located too far away from the working part of the mine to be very effective, and the ventilation was consequently not as good as it should be at the face of the works.

No. 2 mine is not as extensive. It is on the same vein, and now that

they have made a connection with No. 1, the ventilation is better. There are quite a large number of men employed here. The coal is of very good quality, and is four feet in thickness.

Ben's Creek.

Across Ben's creek, right opposite the Sonman mines, is the Ben's Creek mine, operated by S. H. Smith & Co. Martin Leap, superintendent of mines.

Worked on the single-heading plan; natural ventilation. This mine was in good condition. a good current of air circulating around the face of the work, the headings being driven through the hill, thus insuring fresh air.

Mentzer's Mine.

This mine is on the same vein as the Ben's Creek mine, and is operated by E. W. Mentzer. John Leap, mining superintendent. Worked on the single-heading plan, and ventilation is effected by cutting through into the works of S. H. Smith & Co., at intervals. The ventilation, on the whole, was pretty good, and the work in good shape.

The works are not very extensive. The coal is of good quality, and is nearly four feet in thickness.

Laughlin Mine.

Operated by Daniel Laughlin. Thomas Leahy, mine superintendent.

Worked on the single-heading plan; natural ventilation. The works are small, being newly opened, and not many men being employed. As the mine is extended a furnace will be needed. The mine is laid out in good shape, and the coal is very clean, and of good quality.

Westbrook Shaft.

Operated by Daniel Eldridge. William Rodda, mine superintendent.

Mine located about one quarter of a mile from the Pennsylvania railroad. There is a very good shaft down to the vein. The headings are turned off the main-heading at right angles, thus making square work. The plan of the work is single-heading, and ventilated by steam-jet. The hoisting apparatus is first-class, and the engines are of the latest pattern. Everything is in good order, and in a few months they will be able to ship quite a large amount of coal. Mr. Eldridge has the general supervision of the mine, and appears to be a man that understands his business.

Lilly's Mine.

Near Lilly's station, on the Pennsylvania railroad. Operated by Daniel Laughlin. Thomas Leahy, mine superintendent.

Mine worked on the single-heading plan; ventilated by furnace. The ventilation of the mine was good. This is an old mine, re-opened by Mr. Laughlin and the late Mr. Dysart, and the coal is used in making coke. They have quite a number of coke ovens in operation.

Hemlock Mine.

Located at Lilly's station, and operated by Caron Leahy.

Mr. Leahy has had this mine for about a twelvemonth, and is now putting in a new drift, which strikes the vein at a higher point than the old one. He has also put down a shaft, and intends to work his mine in a proper manner. If he will only attend to his mine himself, and start his mine properly, he will have very little trouble in ventilating it.

Standard Mine.

Mine located about one mile from Lilley's station. C. W. Hughes, manager; W. Tylie, superintendent of mine.

Worked on the double-heading plan. Natural ventilation. This is a new mine, and is laid out in very good shape, the roads are high, the drainage is good, and if the present plan is followed there will be no trouble in ventilating this mine.

From present appearances Lilley's station will soon be quite an important little mining town. W. H. Piper & Co. are going to open some coal a short distance from the Standard mine, and the intention is to build a branch road from Lilley's station to the mines.

Bennington Shaft.

Operated by the Blair Iron and Coal Company. Mine located at Bennington, Blair county, on the line of the Pennsylvania railroad. John Fulton, general mining engineer; Martin Meagher, superintendent of mines.

Worked on the single-heading system and ventilated by fan.

The ventilation of the mine was very good, the fan furnishing an abundance of air which is distributed through the mine in a very satisfactory manner.

The mine is a very extensive one, having been in operation about ten years, the coal is used exclusively in making coke, which is done in ovens and in open pits, the coke is of a very superior quality and is used in the company furnaces.

Porter Shaft.

Located about one mile from Bennington, Blair county. Operated by Denniston, Porter & Co. C. H. Porter, general superintendent; John Leonard, mine superintendent.

Worked on the single-heading system. Natural ventilation.

I found, on examination, the headings were driven too far ahead of the air-current, and while there was an abundance of air coming into the mine it could not get where it was most needed. All the arrangements around the mine are excellent, and if the superintendent would see that the airways are kept near the face of the headings, there would be no fault to find with this mine.

The mine is a very extensive one, the vein is thin, consequently a great

amount of ground is gone over each year. The coal is used in making coke, which is done in open pits.

Glen White Mine.

Operated by the Glen White Coal Company. David McCoy, general manager. Valentine Eichenlaub, mine superintendent.

This mine is two miles from Kittanning Point, Blair county, and is reached by a branch railroad from the Point. Mine worked on the single-heading plan, and ventilated by furnace. The ventilation was good, and the doors and bratticing being in good order, the seam is very thin, and is largely used in making coke. A new drift is being put in by this Company to open another seam of coal that underlies the seam they are now working.

Horse Shoe Mines.

These mines are three miles from Kittanning Point and are reached by a narrow gauge railroad. Operated by S. C. Baker & Co. W. H. Patrick, general manager; John Fife, mine superintendent.

Worked on the single-heading plan; natural ventilation. The ventilation of this mine was not good. Mr. Patrick making the common mistake of driving too far ahead of the air current. Mr. Patrick was absent at the time of my visit, but I have since written him to start a furnace in his mine, and then the ventilation would be better. I have not, at the time of writing, heard from him.

This company are putting in a new drift in a seam that overlays the one they are now working. The coal is four feet in thickness, and the mine looks very good. They have a very good shaft down to the vein, and there is now no reason why the mine should not be first-class in every respect. The coal of these mines is largely used in making coke.

Lloyd's Mine.

Mine locaeated at Lloydsville on the Bell's Gap railroad, Cambria county. R. G. Ford, general manager; R. Dawson, superintendent of mine.

Worked on the double-heading plan, and ventilated by fan. This mine has been in operation for quite a number of years, and is very extensive. The ventilation of this mine was very good, quite a good current passing near the face of the headings, and the rooms getting their full share of it.

There are two different seams of coal worked in this drift, one of which is reached by driving a rock tunnel. The air current is split, and a separate current goes to each part of the mine. The mine is in very good condition, and shows that those in charge have overcome a great many difficulties.

Great Bend Mine.

This is a new mine, started last spring, and is located two miles from Loydsville, and is on the Bell's Gap railroad. Operated by the Great Bend

Coal Company. Thomas Seabrook, junior, general manager; John Cann, mine superintendent.

Worked on the double-heading system, and ventilated by furnace, which, at the time of my visit, was very small, but it is the intention of Mr. Cann, as soon as he could get a piece of heading work completed, to put in a larger furnace. When these arrangements are completed, he will have no trouble in giving the mines all the air they will require. The vein is four feet in thickness, and is of good quality, and I do not see why Great Bend should not be a lively little mining town.

TABLE I.—*Showing location of collieries in the Fourth Bituminous Mine District.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Barclay,	Towanda Coal Company,	Bradford,	Frank F. Lyon,	Barclay, Bradford county.
Long Valley,	Long Valley Coal Company,	do.	Graham Macfarlane,	Towanda, Bradford county.
Carbon Run,	Schraeder Coal Company,	do.	R. A. Abbott,	Carbon Run, Bradford county.
Fall Creek,	Fall Creek Coal Company,	do.	W. M. Malloy,	Towanda, Bradford county.
Bennington Shaft,	Blair Iron and Coal Company,	Blair,	John Fulton,	Johnstown, Cambria county.
Porter Shaft,	Denniston, Porter & Co.,	do.	C. H. Porter,	Hollidaysburg, Blair county.
Horse Shoe,	S. C. Baker & Co.,	do.	Andrew Patrick,	Altoona, Blair county.
Glen White,	Glen White Coal Company,	do.	David McCoy,	do. do.
Rolling-Mill,	Cambria Iron Company,	Cambria,	John Fulton,	Johnstown, Cambria county.
Cushon,	do. do.	do.	do.	do. do.
Conemaugh,	do. do.	do.	do.	do. do.
Loydville,	Bell's Gap Railroad Company,	do.	R. G. Ford,	Bellwood, Blair county.
Great Bend,	Great Bend Coal Company,	do.	Thomas Seabrook, jr.,	do. do.
Sonman,	W. H. Piper & Co.,	do.	John Leahy,	Hemlock, Cambria county.
Ben's Creek,	S. H. Smith,	do.	S. H. Smith,	Altoona, Blair county.
Lilly's,	Daniel Laughlin,	do.	Daniel Laughlin,	do. do.
Dysart,	do.	do.	do.	do. do.
Old South Fork,	South Fork Coal Company,	do.	George B. Stineman,	South Fork, Cambria county.
Stineman,	J. C. Stineman,	do.	J. C. Stineman,	do. do.
Euclid,	Euclid Coal Company,	do.	S. S. Paull,	do. do.
Argyle,	Argyle Coal Company,	do.	J. P. Wilson,	do. do.
Aurora,	Luke & Heist,	do.	Daniel W. Luke,	do. do.
Summer Hill,	Summer Hill Coal Company,	do.	Stephen Dimond,	Summer Hill, Cambria county.
Martin,	J. C. Martin & Co.,	do.	David Patrick,	Portage, Cambria county.
Westbrook Shaft,	Daniel Eldridge,	do.	William Rodda,	do. do.
Mentzer,	E. W. Mentzer,	do.	E. W. Mentzer,	Hollidaysburg, Blair county.
Standard,	Standard Coal Company,	do.	E. J. Hughes,	Hemlock, Cambria county.
Hemlock,	Caron Leahy,	do.	Caron Leahy,	do. do.
Snow Shoe,	Berwind, White & Co.,	Centre,	George Ramsey,	Snow Shoe City, Centre county.
Black Diamond,	J. W. Jackson,	do.	J. W. Jackson,	Osceola Mills, Clearfield county.
Sterling, No. 3,	Robert H. Powell,	do.	James Campbell,	Houtzdale, Clearfield county.
Powelton,	do.	Huntingdon,	Edward McHugh,	Huntingdon, Huntingdon county.
Ocean,	W. H. Sweet & Co.,	do.	W. H. Sweet,	Dudley, Huntingdon county.
Moredale,	Reakirt, Brothers & Co.,	do.	David E. Conrad,	do. do.
Fisher,	Read Brothers,	do.	Scott Read,	do. do.
Carbon,	J. F. Mears,	do.	J. F. Mears,	Broad Top City, Huntingdon county.
Robertsdale,	Rockhill Iron Company,	do.	A. W. Sims,	Orbisonia, Huntingdon county.
McIntyre,	McIntyre Coal Company,	Lycoming,	G. H. Platt,	Langdon, Lycoming county.
Morris Run,	Morris Run Coal Company,	Tioga,	W. S. Nearing,	Morris Run, Tioga county.
Fall Brook,	Fall Brook Coal Company,	do.	Frederick Wells,	Fall Brook, Tioga county.
Antrim,	do. do.	do.	Thomas Farrer,	Antrim, Tioga county.
Arnot,	New York, Lake Erie & Western Railroad Co.,	do.	Henry J. Landrus,	Arnot, Tioga county.
Bernice,	State Line and Sullivan Railroad Company,	Sullivan,	Richard Woodward,	Bernice, Sullivan county.

TABLE II.—*A statement showing characteristics, number of employés, production, &c., of the respective collieries in the Fourth Bituminous Mine District, for the year ending December, 1881.*

NAME OF COLLIERY.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	No. of pumps.	No. of engines.	Horse power.	No. of boilers.	No. of miners—men.	No. of miners—boys.	Other employees.	Total employees.	No. of mules inside.	No. of mules and horses.	No. of locomotives—mine	Total production of coal in tons.
Antrim, Nos. 1, 2, and 3,	Semi-bituminous,	Drift,		2			420		128	580	35		2	
Arnot, Nos. 1, 2, 3, and 4,	do.	do.		4		6	722		203	925	120		2	
Argyle,	Bituminous,	do.					23		7	30	5			
Aurora,	do.	do.					26		5	31	2			
Barclay, Nos. 1, 2, 3, and 4,	Semi-bituminous,	do.	2	3		3	275		85	360	66			
Ben's Creek,	do.	do.					40		5	45	5			
Bennington,	do.	Shaft,	2	3		7	130		56	186	37			
Bernice,		Drift,	2	3		3	150		60	210	33			
Black Diamond,	Bituminous,	do.					35		5	40	5			
Carbon Run, Nos. 1, 2, and 3,	Semi-bituminous,	do.					160		48	208			1	
Carbon Mines, Nos. 1 and 2,	Bituminous,	do.					50		20		8			
Conemaugh,	Semi-bituminous,	do.					15		6	21	3			
Cushon,	do.	do.					72		18	90	4			
Dysart,		do.					22		7	29	4			
Fall Brook, Nos. 1 and 2,	Semi-bituminous,	do.					156		44	200				
Fisher,		do.					22		8	30	5			
Glen White,	Semi-bituminous,	do.		1			60		16	76	13			
Great Bend,		do.					23		7	30	2			
Loyds,	Semi-bituminous,	do.	1	1		2	120		7	127	20			
Long Valley,	do.	do.					35		9	44	3		1	
Lilley's,		do.					18		7	25	2			
McIntyre, Nos. 1, 2, 3, and 4,	Semi-bituminous,	do.	2	4		4	458		105	563	64		1	
Martin,		do.					18		8	26	2			
Mentzer,		do.					40		5	45				
Morris Run, Nos. 1, 2, and 3,	Semi-bituminous,	do.	1	4	4		539		75	614	72		1	
Moredale,		do.					20		1	21	2			
Old South Fork,		do.	1	1	30	1	15		5	20	1			
Porter,	Semi-bituminous,	Shaft,		1		2	90		35	125	12			
Robertsdale, Nos. 1, 2, and 3,	do.	do.	1	3		3	216		12	228	26			
Rolling-Mill,	do.	Drift,		1		2	220		86	306	25		1	
Snow Shoe, Nos. 1, 2, and 3,	Bituminous,	do.		1		1	137		40	177	24			
Sonman, Nos. 1 and 2,	do.	do.					120		30	150	17			

TABLE II.—A STATEMENT SHOWING CHARACTERISTICS, PRODUCTION, &c.,—*Continued.*

NAME OF COLLIERY.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	No. of pumps.	No. of engines	Horse power.	No. of boilers.	No. of miners—men	No. of miners—boys.	Other employees.	Total employees	No. of mules inside.	No of mules and horses.	No. of locomotives—mine.	Total production of coal in tons.
Stineman,	Bituminous,	Drift,					30		7	37	4			
Summerhill, Nos. 1 and 2,	do.	do.					23		10	33	3			
Standard,	do.	do.					20		4	24	3			
Ocean,							50		4	54	5			
Sterling, No. 3,							32		4	36	2			
				32			4,615		1,182	5,797	638		10	

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Fourth Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of opening.	Number of headings.	Inlet size of—sq. feet.	Outlet size of sq. feet.
Antrim, No. 1,	Furnace,		6x 9 6x 9	65,436	2	6	42	48
Antrim, No. 2,	Furnace,		5x 6	11,340	2	5	40	27
Arnot, No. 1,	Furnace,		5x 6	30,000	2		42	72
Arnot, No. 2,	Furnace,		6x 7	20,480	2		50	42
Arnot, No. 3,	Furnace,		6x 7	14,240	2	10	65	70
Argyle,	Natural,				2	4	42	30
Barclay, No. 1,	Furnace,		6x 8		2		72	100
Barclay, No. 2,	Furnace,		5x 7	50,000	2	2	92	98
Barclay, No. 3,	Furnace,		5x 7	23,000	2	7	68	80
Barclay, No. 4,	Furnace,		4x 6	22,000	2	3	40	60
Bennington shaft,	Fan,	12		28,500	3	7	140	352
Ben's Creek,	Natural,				3	4	30	30
Bernice, No. 1,	Furnace,		5x 8	14,500	3	4	50	40
Bernice, No. 2,	Natural,				2	2	40	60
Black Diamond,	Furnace,		5x 6		2	2	30	30
Carbon Run, No. 1,	Furnace,		6x 8	17,293	2		100	50
Carbon Run, No. 2,	Furnace,		5x 8	9,889	3		64	90
Carbon Run, No. 3,	Furnace,		5x 8	33,579	2		50	60
Carbon, No. 1,	Natural,				2		36	28
Carbon, No. 2,	Natural,				3	4	50	35
Conemaugh,	Furnace,		3x 6	3,720	2	2	36	31
Cushon,	Furnace,		5x 8	4,000	2	3	64	25
Dysart,	Natural,				2	4	42	25
Euclid,	Natural,				2	2	32	28
Fall Brook, No. 1,	Furnace,		5x 9	9,750	2	9	30	30
Fall Brook, No. 2,	Furnace,		6x 9	115,900	2	16	35	60
Fisher,	Natural,				2	2	36	22
Glen White,	Furnace,		3x 5	5,820	2	7	40	30
Great Bend,	Furnace,		3x 6		2	5	56	36
Hemlock,	Natural,				2	2	36	40
Horse Shoe, No. 1,	Furnace,		3x 5		2	3	30	38
Horse Shoe, No. 2,	Natural,				2	4	36	28
Loydsville,	Fan,	12		19,250	2	4	33	33
Long Valley,	Furnace,		5x 8	16 000	3	4	100	40
Lilly's,	Natural,				2	2	42	25
McIntyre, No. 1,	Furnace,		5x 5		2			
McIntyre, No. 2,	Furnace,		6x 8	12.017	3		48	48
McIntyre, No. 3,	Furnace,		7x 8	22,338	4		48	56
McIntyre, No. 4,	Furnace,		7x 8	13,635	2		35	56
Morris Run, No. 1,	Furnace,		8x10	62.640	3	7	90	72
Morris Run, No. 2,	Furnace,		10x12	57.090	3	8	130	66
Morris Run, No. 3,	Furnace,		8x10	45,240	2	13	95	52
Moredale,	Natural,				2		42	
Martin,	Natural,				2		96	
Mentzer,	Natural,				2		48	28
Ocean,	Natural,				3		50	37
Powelton,	Natural,				2		56	36
Porter Shaft,	Natural,				3		40	24
Robertsdale, No. 1,	Furnace,		6x 8	16,500	3			
Robertsdale, No. 2,	Furnace,		6x 8					
Rolling-Mill,	Fan,	16		43,400	2	6	64	70
Snow Shoe, No. 1,	Furnace,		6x 8		2		48	34
Snow Shoe, No. 2,	Furnace,		5x 7		2		33	41
Snow Shoe, No. 3,	Furnace,		5x 7		2		36	40
Sonman, No. 1,	Furnace,				2		42	30
Sonman, No. 2,	Furnace,				2			
Stineman,	Natural,				2			
Sterling, No. 3,					2		40	28
South Fork,					2			
Summerhill,	Natural,				2		35	28
Standard,	Natural,				2		60	25
Westbrook Shaft,	Steam jet,				2		200	12

TABLE IV.—*Showing an Average Monthly Statement of the Ventilation of the respective Collieries in the Fourth Bituminous Mine District during the year 1881.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.
Antrim No. 1,					821	40,334					850	40.280	1.442	60,564	235	9,165	1,442	65,436
Antrim No. 2,			291	7,350	435	12,245					453	12,450	320	11,200	250	9 000	420	11,340
Arnot No. 1,							521	21,882	250	7,000	366	22 000	546	23,000	259	7,240	467	30 000
Arnot No. 2,	465	19.780	275	8,783	317	19,563	525	21,000	154	5,390	553	22,120	700	28 000	170	5,950	512	20,480
Arnot No. 3,	417	11,576	145	5,917	577	23.090	223	14,485	285	6,892	308	12 320	240	15,600	288	7,212	256	14,240
Arnot No. 4,	452	16,671	313	7 506	405	15.990												
Barclay No. 1,	160	16,000	330	13 610	762	81,250												
Barclay No. 2,									110	4,400	500	50,000	120	12,000	110	5,280	500	50,000
Barclay No. 3,			190	7,600	312	25,000	110	11,000	190	7,600	235	23,500			190	8 000	230	23.000
Barclay No. 4,									120	4,800	235	23,500			120	4,800	220	22,000
Bennington,	214	29,977	166	7 949	90	27,756	204	27 800	152	7,450	82	28 400	206	28.900	165	7,700	83	28 500
Bernice No. 1,	210	12.500	56	2,812	301	15,060	200	12,000	60	3 000	300	15,000	220	13 200	45	2,430	240	14,200
Carbon Run No. 1,					346	31,526					294	27 459					549	17,293
Carbon Run No. 2,					554	17,450					535	17,532					319	9,889
Carbon Run No. 3,					296	9 186					316	9.811					369	33 579
Conemaugh,	99	3,512	50	1 500	119	3,689	100	3 600	50	1.500	119	3.689	99	3,750	49	1,450	120	3 720
Cushon,	60	3,830	59	3,180	160	3.988	59	3,790	60	3 240	159	3,979	60	3,840	60	3,240	160	4,000
Fall Brook No. 1,	280	8 400	260	6,240	253	7 500												
Fall Brook No. 2,	280	9.800	260	6 240	320	19,200	275	8,200	258	6,180	330	9 900	270	8.100	275	6,600	325	9,750
Fall Brook No. 3,							290	10,000	285	6.835	328	19 650	265	9 275	270	6,680	265	15.900
Glen White,	161	5,800	73	2 768	262	5 777	160	5,760	76	3,040	263	5 800	160	5 760	70	2,800	265	5,830
Lloyd's,	582	20,000	230	8.050	625	21,750												
Long Valley,							135	12.150	150	6 750	350	14,000	300	27,000	400	18,000	400	16,000
McIntyre No. 1,	177	6,365	227	7 320			180	6 400			285	9 000	195	5,850				
McIntyre No. 2,	135	8,705	92	3,891	222	12 279	150	8 800	90	3 700	240	13,094	139	6,672	100	4 110	180	12 017
McIntyre No. 3,	170	15,981	267	10,862	365	23 866	165	15.500	260	11,000	360	21,875	150	11 700	140	5 625	370	22,338
McIntyre No. 4,	137	9,708	227	10.669	227	12 097	140	9 844	100	4,800	220	14,000	150	8 400	230	6,400	210	13 645
Morris Run No. 1,	433	39.000	154	6,975	870	62 640	432	38.925	155	6,975	865	62,280	432	38 880	150	6 750	870	62,640
Morris Run No. 2,	433	56,250	153	6,800	870	57 420	432	56 220	155	6 975	865	57,090	430	55,900	155	6,975	865	57,090
Morris Run No. 3,	432	38,910	167	7,500	870	45,250	430	38,700	165	7,425	865	44,720	431	37,000	165	7,425	870	45,240

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TABLE IV.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim No. 1,	1 440	60,480	240	8,640	1,445	60,690	1,440	60,480	230	8 970	1,442	65,436	1,300	52 000	230	7,200	1,420	57,800
Antrim No. 2,	230	8,970	200	7,000	420	11,340	330	11,550	240	8,640	420	11,350	340	11,900	240	8,640	450	12,150
Arnot No. 1,	465	19,390	230	7,630	310	19,840	544	22,354	225	6,660	373	23,940	475	19,950	244	7,848	330	21 120
Arnot No. 2,	583	23 380	193	6,755	612	24,480	545	26,720	154	5,330	560	22 550	600	24,000	190	6 654	540	21 600
Arnot No. 3,	220	14 300	297	7 628	397	15 880	245	15,180	294	7,840	305	12,160	415	26,975	220	5,280	445	17,800
Barclay No. 1,	182	18,200	140	6,720	520	52,000	210	21,000	140	6,720	600	60,600	250	25 000	120	5,760	400	40,000
Barclay No. 2,	200	20 000	180	7 200	330	33,000	190	19,000	180	7,200	320	32 000	200	20,000	170	6,800	310	31,000
Barclay No. 3,	110	11,000	180	7,200	240	19,200	150	15 000	200	8 000	260	20,800	100	10 000	180	7,200	240	19,200
Barclay No. 4,	250	25,000	190	7,600	250	25 000	250	25,000	180	7,200	230	23 000	240	24,000	200	8 000	230	18,400
Bennington,	218	30,520	172	8 256	83	29 216	210	29,400	166	7,800	93	30,400	201	28 000	150	7,400	85	29,400
Bernice No. 1,	225	13 500	12	648	497	32,905	180	16 800	46	2,454	350	20,500	140	8 400	17	850	230	9,200
Bernice No. 2,	. . .	. .	. .	. .	. .	. . . .	65	3,250	60	3,000	50	3,500	150	9 000			260	13 000
Black Diamond,	. . .	. .	. .	. .	. .	. .			. .	. . .			165	5,940	80	4,400	220	8 800
Carbon Run No. 1,	. . .	. .	. .	. .	309	28,119	. .	. . .	. . .	. . .	209	19,019	.	. .		. .	580	18,238
Carbon Run No. 2,	. .	. .	. .	. .	579	18 238	. .	. .	. .	. . .	220	12 000	. . .	. . .	. . .	. . .	210	19,200
Carbon Run No. 3,	.	.	.	.	229	11,450	.	.	.	. .	580	17,400	.	.		.	230	11,450
Conemaugh,	95	3 420	48	1 440	120	3 720	98	3 528	48	1,440	120	3 720	98	3,528	48	1,440	120	3 720
Cushon,	58	3,712	60	3,240	160	4 000	60	3,840	65	3,510	165	4,125	60	3,840	60	3 240	165	4,125
Fall Brook No. 1,	240	7,200	200	7,000	315	9 450	275	8 400	270	6,480	270	7,950	230	8,400	280	6 720	260	15,160
Fall Brook No. 2,	260	9,100	250	6,000	220	13 200	280	20,180	285	6 840	255	7,650	240	14 400	300	7 200	290	10 150
Glen White,	165	5,940	65	2,600	275	6,050	165	5,640	70	2,800	270	5,940	160	5 760	70	2 800	275	6,050
Lloyd's,	520	18 200	200	7 000	550	19 250							500	17,500	200	7,000	540	18,900
Long Valley,	200	18,000	200	9,000	350	16,800	300	37,800	340	15,300	400	16 000	300	30 700	250	11 250	400	16,000
McIntyre No. 1,	220	6,600				. .	200	6,000					210	6 300				
McIntyre No. 2,	177	8,496	120	4,692	260	12 480	210	10,500	160	5,856	310	15,500	200	9,600	160	5 856	300	14 400
McIntyre No. 3,	190	14,820	160	6,241	400	22 400	220	19 765	240	7 200	400	23,768	180	12,600	230	9 200	400	20,500
McIntyre No. 4,	155	8,400	230	6,450	180	10,080	250	14 000	330	11,523	310	19,077	200	11 200	190	7 600	280	16,440
Morris Run No. 1,	430	37,800	150	6,750	865	62,280	430	38 700	150	6 750	865	62,280	440	39,600	150	6,750	885	63,720
Morris Run No. 2,	432	55,160	155	6,975	860	56 760	435	56,560	155	6,975	870	57,440	345	45,750	140	5,600	675	40,200
Morris Run No. 3,	435	39,190	160	7,200	870	45,240	435	39,150	165	7 455	860	42,750	380	43 200	150	6 250	725	36,250

Porter,	300	12,000	. . .	. . . .	. . .	. . . .	314	12,560	. . .	. . . .	. . .	. . . . .	300	12 000	175	8 750	525	15 750
Robertsdale,							. . .		. . .	. . . .	. . .	. . . . .	550	16.500	395	19 750	618	43 260
Rolling-Mill,	719	46.016	395	19,750	619	43.330	720	46,080	395	19 750	617	43.190	720	46 080	395	19 750	618	43 260
Snow Shoe No. 1,	250	10,500	40	1,400	240	14,400	150	9,750	50	1 400	225	6 300	240	10 080	50	1 800	230	11 900
Snow Shoe No. 2,	. .	. . . .	.	. . .	.		170	5.610	40	1 440	195	6.435	170	5 610	40	1.440	210	6 010
Snow Shoe No. 3,	. . . .	. . . .	. . .	. . . .	. . .	. . . .	230	9 660	60	2 100	190	11 400	190	7 410	55	1 500	280	7, 340
Sonman No. 1,	. . . .	. . . .	. . .	. . . .	. . .	. . . .	135	4 860	50	1.600	325	8,125	145	5 220	75	2 100		
Sonman No. 2,	. . . .	. . . .	. .	. . . .	. . .	. . . .	75	2,250	110	3,080	. . .	. . . .	75	2,250	50	1,600	290	7,850

LIST OF ACCIDENTS *occurring in the mines of the Fourth Bituminous District of Pennsylvania, for the year ending December 31, 1881.*

DATE.	Name of Person Injured.	Age.	Married or Single.	Number of orphans.	Name of Colliery.	Location—county.	Date of investigation.	Nature and Cause of Accident.
Jan. 20	Unah Bingham,	55	Married,		Rolling-Mill,	Cambria,		Collar bone broken by fall of coal.
Jan. 31	Joseph Blinco,	45	Married,		Barclay mine,	Bradford,		Collar bone broken; cause not given.
Mar. 18	Daniel Sullivan,	35	Married,		Arnot mine,	Tioga,		Arm broken by mine car.
Mar. 23	John Rourke,	45	Married,		Robertsdale,	Huntingdon,		Foot bruised by fall of coal.
Mar. 31	Henry Inley,	18	Single,		Arnot mine,	Tioga,		Leg bruised by mine cars.
April 2	Henry Husted,	20	Single,		Arnot mine,	Tioga,		Hand bruised by fall of fire-clay.
April 11	Frank Schraeder,	20	Single,		Barclay,	Bradford,		Arm broken by mine car.
April 16	Joseph Coleski,	25	Single,		Rolling-Mill,	Cambria,	April 16	Killed by fall of coal.
April 21	David Rees,	38	Married,	8	Barclay,	Bradford,		Killed by fall of rock from roof.
May 23	Hugh Ross,	28	Married,		Arnot,	Tioga,		Hurt on head and back by fall of fire-clay.
May 25	John McCarly,	12	Single,		Arnot,	Tioga,		Back hurt by mine car.
June 4	R. Wells,	50	Married,		Lloyd's mine,	Cambria,		Collar bone broken by fall of slate.
June 8	Daniel Casey,	42	Single,		Rolling-Mill,	Cambria,		Killed by fall of top-coal and slate.
June 17	Edward Brown,		Married,		Bernice,	Sullivan,		Entire loss of sight by premature blast.
June 17	John Hall,	20	Single,		Arnot,	Tioga,		Bruised on ankle by mine car.
June 24	John Sedinger,	21	Married,		Arnot,	Tioga,		Hurt on back and side by fall of roof.
July 21	Samuel Heron,	48	Married,		Arnot,	Tioga,		Two toes broken by fall of coal.
July 22	Adam Bradley,	21	Single,		Arnot,	Tioga,		Back hurt by fall of coal.
July 22	Noah Bradley,	23	Single,		Arnot,	Tioga,		Leg hurt by fall of coal.
July 23	Dennis Harrington,	50	Single,		Cushon,	Cambria,		Thigh broken by fall of coal.
Aug. 2	Landislaus Michowski,	33	Married,		Antrim,	Tioga,		Leg broken by fall of coal and crow-bar.
Aug. 12	James A. Hutchinson,	14	Single,		Arnot,	Tioga,		Ankle put out of joint, and otherwise hurt on foot, by mule turning out and catching him between the cars.
Aug. 19	Levi Mossey,	26	Single,		Ben's Creek,	Cambria,		Killed by fall of slate.
Sept. 10	Dight Hawes,				Long Valley,	Bradford,		Leg bruised by being run over by a car.
Sept. 15	William Gaheen,	40	Married,		Long Valley,	Bradford,		Back hurt by fall of top-rock.
Sept. 15	John McDonald,	55	Married,		Robertsdale,	Huntingdon,		Ankle bruised; no cause given.
Sept. 19	John Franz,	26	Single,		Morris Run,	Tioga,		Collar bone broken by fall of top-coal.
Sept. 28	Thomas Phillips,	12			Antrim,	Tioga,		Killed by fall of top-slate.
Sept. 30	John Johnson,	40	Married,		McIntyre,	Lycoming,		Hurt by fall of slate.
Oct. 4	John Daniels,	52	Married,		Arnot,	Tioga,		Collar bone broken by fall of coal.
Oct. 25	James McKenna,	46	Married,		Arnot,	Tioga,		Foot bruised by mine wagon.
Oct. 28	George Touchner,	13	Single,		Bernice,	Sullivan,		Killed; crushed between mine car and pillar.
Oct. 28	Patrick Garvey,	40			Morris Run,	Tioga,		Leg broken by fall of roof-slate.
Nov. 8	Archibald Muir,		Single,		Carbon Run,	Bradford,	Nov. 8	Killed by fall of middle-rock.

Nov. 20	John Withey,	16	Single,	Antrim,	Tioga,			Leg cut by being caught by wagon against the side of the heading.
Nov. 14	Cam O'Neal,	22	Married,	Robertsdale,	Huntingdon,			Body bruised; caught between the car and the side of the heading.
Dec. 5	Andrew Johnson,	52	Married,	McIntyre,	Lycoming,			Hurt by fall of slate.
Dec. 5	Andrew Carlson,	27	Single,	McIntyre,	Lycoming,			Hurt by fall of slate.
Dec. 12	J. G. Erleson,	23	Single,	McIntyre,	Lycoming,			Foot run over by car.
Dec. 15	David Gibson,	42	Married,	Arnot,	Tioga,			Ankle sprained by jumping off the cars while in motion.
Dec. 15	John Evans,	35	Married,	Arnot,	Tioga,			Ankle sprained by jumping off the cars while in motion.
Dec. 17	Henry Mansell,	28	Married,	McIntyre,	Lycoming,			Kicked by mule; not serious.
Dec. 28	James Patterson,		Married,	Arnot,	Tioga,			Bruised by fall of coal; not serious.

LABOR LAWS OF PENNSYLVANIA.

EXEMPTION FROM EXECUTION.

AN ACT

To exempt property to the value of three hundred dollars from levy and sale on execution and distress for rent.

Section 1. Be it enacted, etc., That in lieu of the property now exempt by law from levy and sale on execution, issued upon any judgment obtained upon contract and distress for rent, property to the value of three hundred dollars, exclusive of all wearing apparel of the defendant and his family, and all Bibles and school-books in use in the family, (which shall remain exempted as heretofore,) and no more, owned by or in possession of any debtor, shall be exempt from levy or sale on execution or by distress for rent.

Property to the value of $300, exclusive of wearing apparel, etc., exempt from levy and sale.

Section 2. That the sheriff, constable, or other officer charged with the execution of any warrant issued by competent authority, for the levying upon and selling the property, either real or personal, of any debtor, shall, if requested by the debtor, summon three disinterested and competent persons, who shall be sworn or affirmed, to appraise the property which the debtor may elect to retain under the provisions of this act, for which service the said appraisers shall be entitled to receive fifty cents each, to be charged as part of the costs of the proceedings; and property thus chosen and appraised, to the value of three hundred dollars, shall be exempt from levy and sale on the said execution or warrant, excepting warrants for the collection of taxes.

Property to be appraised.

Pay of appraisers.

Section 3. That in any case where the property levied upon as aforesaid shall consist of real estate of greater value than three hundred dollars, and the defendant in such shall elect to retain real estate amounting in value to the whole sum of three hundred dollars, or any less sum, the appraisers aforesaid shall determine whether, in their opinion, the said real estate can be divided without injury to or spoiling the whole; and if the said appraisers shall determine that the said real estate can be divided as aforesaid, then they shall proceed to set apart so much thereof as in their opinion

Proceedings in case the defendant elects to retain real estate.

shall be sufficient to answer the requirement of the defend ant in such case, designating the same by proper metes and bounds, all of which proceedings shall be certified in writing by the said appraisers, or a majority of them, under their proper hands and seals, to the sheriff, under sheriff, or coroner, charged with the execution of the writ in such case, who shall make return of the same to the proper court from which the writ issued, in connection with the said writ:

Proviso.

Provided, That this section shall not be construed to affect or impair the liens or bonds, mortgages, or other contracts for the purchase money of the real estate of insolvent debtors.

Plaintiff entitled to his writ of venditioni exponas to sell real estate.

Section 4. That upon return made of the writ aforesaid, with the proceedings thereon, the plaintiff in the case shall be entitled to have his writ of *venditioni exponas*, as in other cases, to sell the residue of the real estate included in the levy aforesaid, if the appraisers aforesaid shall have determined upon a division of the said real estate; but if the said appraisers shall determine against a division of said real estate, the plaintiff may have a writ of *venditioni exponas* to sell the whole of the real estate included in such levy; and it shall and may be lawful in the latter case for the defendant in the execution to receive from the sheriff or other officer of the proceeds of said sale so much as he would have received at the appraised value had the said real estate been divided.

Repeal.

Section 5. That the twenty-sixth section of the act entitled "An act relating to executions," passed sixteenth of June, 1836, and the seventh and eighth sections of an act entitled "An act in regard to certain entries in ledgers in the city of Pittsburg, and relating to the publishing of sheriff's sales and for other purposes," passed twenty-second April, 1846, and all other acts inconsistent with this act, be and the same are hereby repealed.

When this act to take effect.

Section 6. That the provisions of this act shall not take effect until the fourth day of July next, and shall apply only to debts contracted on and after that date.

APPROVED, April 9th, 1849.

AN ACT

Relating to boarding-house keepers in the county of Allegheny.

May attach wages of persons indebted for board.

Section 1. Be it enacted, &c., That on and after the passage of this act all proprietors of hotels, inns, boarding houses, lodging houses, et cetera, within the county of Allegheny, in addition to the remedies now provided by law,

shall have the right to attach wages due or owing to such persons as may be indebted to them for boarding, not exceeding the amount of four weeks, and any sum so due may be attached, but shall not be paid until the judgment is first had for such amount as may be due upon such attachment, and justices of the peace shall have jurisdiction of attachment in case for such purpose.

Section 2. All acts or parts of acts inconsistent herewith, be and the same are hereby repealed.

Approved, March 16th, 1872.

AN ACT

Extending the provisions of an act, entitled "An act relating to boarding-house keepers in the county of Allegheny," approved March 16th, 1872, to Westmoreland county.

Section 1. Be it enacted, &c., That the provisions of an act, entitled "An act relating to boarding-house keepers in the county of Allegheny," approved March 16th, 1872, be and the same is hereby extended to the county of Westmoreland.

Approved, April 10th, 1873.

FACTORIES.

AN ACT

Relative to the hours of labor in manufacturing establishments.

Ten hours to be considered a legal day's labor in factories.

Section 2. Be it enacted, etc., That from and after the passage of this act, labor performed during a period of ten hours on any secular day in all cotton, woolen, silk, paper, bagging and flax factories, shall be considered a legal day's labor, and that hereafter no minor shall be employed in or about any of said factories, until he or she shall have attained the age of thirteen years.

Penalty for employing minors under thirteen years of age.

Section 3. That if any owner or employer of or in any of the said factories, or his, her or their agent, shall wilfully or knowingly employ any minor below the age of thirteen years as aforesaid, the person or persons so offending shall pay a penalty of fifty dollars for every such offence, to be sued for and recovered by any person suing for the same, as other debts of like amount are now by law recoverable; one half of the same to belong to the person suing for the same, and the other half to the county in which the offence was committed.

Minors between the age of thirteen and sixteen years not to be employed in said factories for more than nine months.

Section 4 That hereafter no minor who has attained the age of thirteen, and is under the age of sixteen years, shall be employed in any of the factories aforesaid, for a longer period than nine calender months in any one year, and who shall not have attended school for at least three consecutive months within the same year; and any owner or employer of or in any of the factories aforesaid, offending against the provisions of this section shall be liable to the penalty provided in the third section of this act, to be sued for, recovered, and applied as therein provided.

Penalty for parents or guardians permitting their children or wards under the age of thirteen years to be employed in such factories.

Section 5. That from and after the fourth of July next, if any parent or guardian shall consent to, permit, or connive at the employment of his or her child or ward under the age of thirteen years in any of the said factories, or if such parent or guardian shall consent to, permit, or connive at the employment of his or her child or ward over the age of thirteen years, and under the age of sixteen years, for a longer period than ten hours in any secular day, the person so offending shall forfeit and pay the sum of fifty dollars for every such offence to be sued for and recovered as provided in the third section of this act, and for the uses therein specified.

Repeal.

Section 6. That the act, entitled "An act to limit the hours of labor and to prevent the employment in factories of children under the age of twelve years," approved the 28th day of March, 1848, be, and the same is hereby repealed.

APPROVED, April 21st, 1849.

A SUPPLEMENT

To an act passed the 21st of April, 1849, relative to the hours of labor in manufacturing establishments.

Operatives under 21 years not to be employed more than 60 hours per week, nor 10 hours per day.

Section 1. Be it enacted, &c., That from and after the passage of this act, no male or female operative under the age of twenty-one years shall, under any contract, be employed in cotton, woolen, silk, flax, bagging or paper manufactories in this Commonwealth, for a longer period than sixty hours in any one week, or more than an average of ten hours a day during the same period.

Penalty for violating preceding section.

Section 2. That if any person shall knowingly employ, or any parent or guardian consent to the employment of any male or female operative under the age of twenty-one years as aforesaid, contrary to the preceding sections, and proof be made thereof before any alderman or justice of the peace

of the ward, borough, or district where such offence is committed, he, she, or they so employing such operatives or consenting thereto as aforesaid, shall, for every such offence, forfeit and pay the penalty of not less than ten, nor more than fifty dollars, to be recovered before any alderman or justice of the peace of the proper ward, borough, or district in the same manner as the like penalties are now recovered, to be applied to the use of the public schools of the proper districts: *Provided*, That no penalty shall be recovered under this act, unless sued for within one month after the same shall have occurred; nor shall any person recover more than one penalty for the working of any factory for the same period of time. Proviso.

Section 3. That all the ward, borough, and township constables are hereby authorized and required, and it is hereby made their duty to attend to the strict observance of the two preceding sections of this act, when complaint shall have been properly made to them of a violation of the same. Duty of constables.

APPROVED, May 27th, 1855.

HOURS OF LABOR.

AN ACT

To limit the hours of labor constituting a day's work in this State to eight hours.

Section 1. Be it enacted, &c., That on and after the first day of July, 1868, eight hours of labor, between the rising and setting of the sun, shall be deemed and held to be a legal day's work in all cases of labor and service by the day, where there is no contract or agreement to the contrary. Eight hours deemed a day's work in certain cases.

Section 2. This act shall not apply to or in any way affect farm or agricultural labor or service by the year, month or week; nor shall any person be prevented by anything herein contained, from working as many hours overtime or extra work as he or she may see fit, the compensation to be agreed upon between the employer and the employee.

Section 3. All other acts or parts of acts relating to the hours of labor which shall constitute a day's work in this State, are hereby repealed.

APPROVED, April 14th, 1868.

FIRE-ESCAPES.

AN ACT

To provide for the better security of life and limb, in cases of fire in hotels and other buildings.

Preamble.

WHEREAS, In consequence of fires breaking out in hotels, factories and other high buildings, many lives have been lost and great personal injuries suffered, through the want of efficient means of escape therefrom, independently of the ordinary internal stairways; therefore,

Certain buildings to be provided with fire-escapes.

Section 1. Be it enacted, etc., That all the following described buildings, within this commonwealth, to wit: Every building used as a seminary, college, academy, hospital, asylum or a hotel for the accommodation of the public, every store-house, factory, manufactory, or workshop of any kind, in which employees or operatives are usually employed at work in the third or any higher story, every tenement house or building in which rooms or floors are usually let to lodges or families, and every public school building, when any of such buildings are three or more stories in height, shall be provided with a permanent safe external means of escape therefrom in case of fire; and it shall be the duty of the owners, superintendents or managers of such seminaries, colleges, academies, hospitals, asylums, store-houses, factories, manufactories or workshops, of the owners or landlords of such tenement houses, or their agents, and of the board of school directors of the proper school district, to provide and cause to be affixed to every such building such permanent fire escapes.

Examination and approval of fire-escapes.

Section 2. It shall be the duty of the board of fire commissioners, in conjunction with the fire marshal of the district where such commissioners and fire marshals are elected or appointed, to first examine and test such fire-escapes, and after, upon trial, said fire-escape should prove satisfactory, then the said fire marshal, in connection with the fire commissioners, or a majority of them, shall grant a certificate approving said fire-escape: *Provided further*, That in districts where no such fire marshal and fire commissioners exist, then the school directors in each said district shall be the board of examiners, and upon their certificate, or a majority of them, of approval of said fire-escape shall be sufficient authority for the erection of said fire-escape in said district.

Liability for damages sustained by want of fire-escapes

Section 3. Every person whose duty it is by the first section of this act to provide, and cause to be affixed to any of said buildings such external fire-escape, and every such

school district, shall also be liable in an action for damages in case of death or personal injury sustained in consequence of fire breaking out in any such building, and of the absence of such efficient fire-escape. And such action may be maintained by any person now authorized by law to sue in other cases of similar injuries. All persons failing to comply with the provisions of this act, shall be liable to a penalty not exceeding ($300) three hundred dollars, to be collected as fines and forfeitures are now by law collectible.

Penalty for non-compliance with act.

APPROVED, June 11, 1879.

MECHANICS' UNIONS.

AN ACT

To authorize mechanics, journeymen tradesmen, and laborers, to form societies and associations for their mutual aid, benefit, and protection.

Section 1. Be it enacted, &c., It shall be lawful for any and all classes of mechanics, journeymen, tradesmen, and laborers, to form societies and associations for their mutual aid, benefit, and protection, and peaceably to meet, discuss, and establish all necessary by-laws, rules, and regulations to carry out the same; all acts or parts of acts inconsistent herewith are hereby repealed: *Provided*, The provisions of this act shall not apply to the counties of Clearfield and Centre.

APPROVED, May 8, 1869.

AN ACT

To relieve laborers, workingmen, and journeymen, from certain prosecutions and indictments for conspiracy, under the criminal laws of this commonwealth.

Section 1. Be it enacted, &c., That from and after the passage of this act it shall be lawful for any laborer or laborers, workingman or workingmen, journeyman or journeymen, acting either as individuals or as members of any club, society, or association, to refuse to work or labor for any person or persons whenever, in his, her, or their opinion the wages paid are insufficient, or the treatment of such laborer or laborers, workingman or workingmen, journeyman or journeymen, by his, her, or their employer is brutal or offensive, or the continued labor by such laborer or laborers, workingman or workingmen, journeyman or journey-

Laborers and others not to be subject to prosecutions for refusing to work.

men, would be contrary to the rules, regulations, or by-laws of any club, society, or organization to which he, she, or they might belong, without subjecting any person or persons, so refusing to work or labor, to prosecution or indictment for conspiracy under the criminal laws of this commonwealth: *Provided*, That this act shall not be held to apply to the member or members of any club, society, or organization, the constitution, by-laws, rules and regulations of which, are not in strict conformity to the constitution of the State of Pennsylvania, and to the constitution of the United States: *Provided*, That nothing herein contained shall prevent the prosecution and punishment, under existing laws, of any person or persons who shall, in any way, hinder persons who desire to labor for their employers from so doing, or other persons from being employed as laborers.

Proviso.

Proviso.

Repeal.

Section 2. That all acts or parts of acts conflicting with the above section, be and the same are hereby repealed.

APPROVED, June 14, 1872.

A SUPPLEMENT

To an act to relieve laborers, workingmen, and journeymen under the criminal laws of this Commonwealth, approved June 14, 1872.

How certain proviso is to be construed.

Section 1. Be it enacted, &c., That the second proviso in the first section of said act, which reads as follows: "That nothing herein contained shall prevent the prosecution and punishment, under existing laws, of any person or persons who shall hinder persons who desire to labor for their employers from so doing, or others persons from being employed as laborers," shall be so construed that the use of lawful or peaceful means, having for their object a lawful purpose, shall not be regarded as "in any way hindering" persons who desire to labor; and that the use of force, threat or menace of harm to persons or property, shall alone be regarded as in any way hindering persons who desire to labor for their employers from so doing or other persons from being employed as laborers.

Repeal.

Section 2. That all acts or parts of acts inconsistent herewith be and the same are hereby repealed.

APPROVED, April 20th, 1876.

MINERS' WAGES.

AN ACT

To protect miners in the bituminous coal regions of this commonwealth.

Section 1. Be it enacted, &c., That after the period of three months, from the passage of this act, any miner employed by an individual, firm or corporation for the purpose of mining coal, shall be entitled to receive from his employer, and failing to receive, then to collect by due process of law, at such rates as may have been agreed upon between the employer and the employed, full and exact wages accruing to him for the mining of all sizes of merchantable coal so mined by him, whether the same shall exist in the form of nut or lump coal; and in the adjudication of such wages seventy-six pounds shall be deemed one bushel, and two thousand pounds, net, shall be deemed one ton of coal; that the provisions of this act shall only apply to the counties of Allegheny, Lawrence, Butler, Beaver, Mercer, Westmoreland, Fayette and Washington: *Provided*, That nothing contained in this act shall be construed to prevent operators and miners contracting for any method of measuring and screening the coal mined by such miners as they may select.

Miners' wages regulated.

Contents of a bushel and ton of coal.

Where applicable.

Method of measuring may be fixed by contract.

Section 2. That at every bituminous coal mine in the counties aforesaid where coal is mined by measurement, all cars filled by miners or their laborers shall be uniform in capacity at each mine; no unbranded car or cars shall enter the mine for a longer period than three months without being branded by the sealer of weights and measures of the county wherein the mine is situated.

Cars to be uniform in capacity.

To be branded.

Section 3. That at every bituminous coal mine in the aforesaid counties the miners shall have the right to employ a competent person as check-weighman, who shall be permitted at all times to be present at the weighing of coal. It shall be a further duty of said check-weighman to see that each miner is correctly credited with all merchantable coal mined by him. When differences arise between the check-weighman and the agent or owners of the mine as to the uniformity, capacity or correctness of scales or cars used, the same shall be referred to the sealer of weights and measures of the county where the mine is located, whose duty it shall be to regulate the same at once, and in the event of said scales and cars proving to be correct, then the party or parties applying for the testing thereof, to bear all costs and expenses thereof, but if not correct, then the owner or owners

Check weighman may be employed.

His duties.

Duty of sealer of weights and measures.

How paid.

of said mine to pay the costs and charges of making said examination.

APPROVED, March 25th, 1873.

AN ACT

Fixing a common basis from which to calculate the earnings of miners or persons working in coal mines.

Scales to be provided at each anthracite mine.

Section 1. Be it enacted, &c., That all persons, partnerships, associations, and corporations engaged in the mining of anthracite coal in this commonwealth, shall provide and erect, at each of their coal mines or collieries, standard and lawful scales for weighing the coal mined therein; and each and every miner's coal shall be separately and accurately weighed on said scale before said coal is dumped and taken from the car on which said miner loaded it in the said mine or colliery, and a separate and an accurate account shall be kept by all said persons, partnerships, associations and corporations of the number of pounds of coal mined by each miner as aforesaid; and the miners in each mine shall have the right to employ, at their own expense, and keep a weighmaster at each of said scales to inspect said scales, and also keep an account of the number of pounds of coal mined by each miner; and the miners at each mine or colliery shall be paid at the rate of so much per pound for amount of coal mined by them, and the pound weight shall be the basis from which to calculate the earnings at all mines or collieries: *Provided*, That the provisions of this act shall apply to mines or collieries in which the coal mined has heretofore been paid for by the car, and that this act shall not go into effect until sixty days after its approval by the Governor: *And provided further*, That if any of said persons, partnerships, associations or corporations shall neglect or refuse to comply with the provisions of this act, he or they so neglecting or refusing shall forfeit and pay, for every day said neglect or refusal after said sixty days, to the commonwealth of Pennsylvania the sum of one hundred dollars, the same to be sued for and recovered in an action of debt in the court of common pleas having jurisdiction of the territory in which said mines or collieries may be situate, the writs in said action to be served on the said persons, partnership, association or corporation, or the superintendents, agents or clerks of said persons, partnerships, associations or corporations resident within the jurisdiction of said court: *And provided further*, That the

Coal to be weighed and account kept.

Miners may employ weigh master.

To be paid by the pound.

How act to apply.

Penalty on persons, partnerships, &c., for not complying with act.

provisions of this act shall not apply to or embrace any persons, partnerships, associations or corporations that may or shall by any contract agree with his or their miners in any of said mines or collieries, otherwise than is provided in this act, for the compensation of mining the same, and no penalty provided therein shall apply to such persons, partnerships, associations or corporations so contracting or agreeing. When not applicable.

Section 2. That all acts or parts of acts inconsistent herewith are hereby repealed. Repeal.

APPROVED, March 30th, 1875.

AN ACT

Fixing the standard weight for a bushel of bituminous coal in this Commonwealth.

Section 1. Be it enacted, &c., That from and after the passage of this act, the standard weight of bituminous coal in this Commonwealth shall be seventy-six pounds to the bushel, and two thousand pounds shall be one ton. Weight fixed.

Section 2. If any person or persons engaged in the business of mining bituminous coal shall fix or establish, or shall attempt to fix or establish, any other number of pounds, by agreement or contract, to be a bushel of bituminous coal, than as is provided for in the first section of this act, such person or persons shall be guilty of a misdemeanor, and upon conviction thereof, shall be sentenced to pay a fine, not less than five hundred and not exceeding one thousand dollars, and all penalties recovered under this act shall be paid into the treasury of the State. Penalty for attempting to establish a different weight.

Section 3. All acts or parts of acts inconsistent with this act are hereby repealed. Repeal.

APPROVED, May 18, 1878.

CORPORATION STORES.

AN ACT

To provide for the incorporation and regulation of certain corporation.

Section 43. Every manufacturing, mining or quarrying company incorporated under the provisions of this act shall be confined exclusively to the purposes of its creation, as specified in its charter, and no such company shall manufacture or sell any commodity or articles of merchandise other than those therein specified. No such company shall engage in nor shall it permit any of its employés or officials to engage in the buying or selling upon the lands possessed Mining, manufacturing, and quarrying companies, to be confined to purposes for which created.

Not to buy or sell merchandise other than specified in charter.

by it of any wares, goods or commodities or merchandise, other than those specified in their charter or necessary for the manufacture of the same. No such company shall permit to be withheld or authorize or direct the withholding of wages due any of its operatives or employés by reason of the sale or furnishing of goods, wares or merchandise by any person to such operatives or employés, unless the same be withheld by reason of and in obedience to due process of law; but nothing herein contained shall prohibit any such company from supplying to its employés oil, powder and other articles and implements necessary for or used in mining.

Not to withhold wages of operatives for merchandise furnished them.

APPROVED, April 29, 1874.

AN ACT

To secure to operatives and laborers, engaged in and about coal mines, manufactories of iron and steel, and all other manufactories, the payment of their wages at regular intervals and in lawful money of the United States.

Employees at mines and manufactories, how to be paid.

Section 1. Be it enacted, &c., That from and after the first day of September, Anno Domini one thousand eight hundred and eighty-one, all persons, firms, companies, corporations or associations in this Commonwealth, engaged in mining coal, ore or other mineral, or mining or manufacturing them, or either of them, or manufacturing iron or steel, or both, or any other kind of manufacturing, shall pay their employés as provided in this act.

To be paid in money or cash order.

Section 2. All persons, firms, companies, corporations or associations, engaged in the business aforesaid, shall settle with their employés at least once in each month and pay them the amounts due them for their work or services in lawful money of the United States or by the cash order as described and required in section three of this act: *Provided*, That nothing herein contained shall affect the right of an employé to assign the whole or any part of his claim against his employer.

Proviso.

Unlawful to issue order other than cash order.

Section 3. That from and after the first day of September, Anno Domini one thousand eight hundred and eighty-one, it shall not be lawful for any person, firm, company, corporation or association, their clerk, agent, officer or servant in this State, to issue for payment of labor any order or other paper whatsoever, unless the same purports to be redeemable for its face value in lawful money of the United States, bearing interest at legal rate, made payable to employé or bearer and redeemable, within a period of thirty days, by the person, firm, company, corporation or associa-

tion giving, making or issuing the same; and any person, firm, company, corporation or association engaged in the business aforesaid, their clerks, agent, officer or servant, who shall issue for payment of labor any paper or order, other than the one herein specified, in violation of this section, shall be guilty of a misdemeanor and upon conviction shall be fined in any sum not exceeding one hundred dollars, in the discretion of the court, which shall go to the common school fund of the district wherein the crime shall have been committed. Penalty.

Section 4. That from and after the passage of this act, it shall be unlawful for any person, firm, company, corporation or association engaged in mining or manufacturing, either or both, as aforesaid, and who shall likewise be either engaged, or interested directly or indirectly, in merchandising as owner or otherwise, in any money, per cent., profit or commission arising from the sale of any such merchandise, their clerks, servants, officers or agents, to knowingly and willfully sell or cause to be sold to any employé any goods, merchandise or supplies whatever, for a greater per cent. of profit than merchandise and supplies of like character, kind, quality, and quantity are sold to other customers buying for cash and not employed by them; and shall any person or member of any firm, company, corporation or association, his or their clerk, agent or servant, violate this section of this act, then and in that case the debt for goods so sold shall not be collectable against the employé so purchasing. Manufacturer or coal operator interested in merchandising, rate of profit limited. Penalty.

Section 5. That if any person, firm, company, corporation or association shall refuse, for the space of twenty days, to settle and pay any of their said employés at the intervals of time as provided in section two of this act, or shall neglect or refuse to redeem any of cash orders herein provided for, within the time specified, if presented, and suit should be brought for the amount overdue and unpaid, judgment for the amount of said claim proven to be due and unpaid, with a penalty of one per centum of such amount added thereto for each and every month's delay, shall be rendered in favor of the plaintiff in such action: *Provided further*, That the cash order, herein provided for, given for the payment of labor, if the laborer continues to hold the same, in case of the insolvency of the company or person or firm or corporation giving the same, such laborer shall not lose his lien and preference under existing law. Upon failure to pay cash, debt to carry interest at one per cent. a month. Proviso.

Section 6. All laws or parts of laws inconsistent herewith, be and the same are hereby repealed. Repeal.

APPROVED, June 29, 1881.

PROTECTION OF WAGES OF MECHANICS, MINERS, LABORERS, AND OTHERS.

AN ACT

For the better protection of the wages of mechanics, miners, laborers, and others.

Wages for six months preceding sales, &c., a lien.

Section 1. Be it enacted, etc., That all moneys that may be due, or hereafter become due, for labor and services rendered by any miner, mechanic, laborer, or clerk, from any person or persons, or chartered company, employing clerks, miners, mechanics, or laborers, either as owners, lessees, contractors, or under owners of any works, mines, manufactory, or other business where clerks, miners, or mechanics are employed, whether at so much per diem or otherwise, for any period not exceeding six months immediately preceding the sale and transfer of such works, mines, manufactories, or business, or other property connected therewith in carrying on said business, by execution or otherwise, preceding the death or insolvency of such employer or employers, shall be a lien upon said mine, manufactory, business or other property in and about, or used in carrying on the said business, or in connection therewith, to the extent of the interest of said owners or contractors, as the case may be, in said property, and shall be preferred and first paid out of the proceeds of the sale of such mine, manufactory, business, or other property as aforesaid: *Provided*, That the claim of such miner, mechanic, laborer, and clerk thus preferred, shall not exceed two hundred dollars: *And provided further*, That this act shall not be so construed as to impair contracts existing or liens of record vested prior to its passage: *And provided further*, That no such claim shall be a lien upon any real estate, unless the same be filed in the prothonotary's office of the county in which such real estate is situated, within three months after the same becomes due and owing, in the same manner as mechanics' liens are now filed.

To be first paid out of proceeds of sales.

Claims not to exceed $200.

Not to impair existing contracts or vested liens.

Claims to be filed in prothonotary's office within three months.

Claimants to give notice of claims to officers executing writs for sale.

Section 2. In all cases of executions, landlord's warrants, attachments, and writs of a similar nature hereafter to be issued against any person or persons, or chartered company, engaged as before mentioned, it shall be lawful for such miners, laborers, mechanics, or clerks, to give notice in writing of their claim or claims, and the amount thereof, to the officers executing either of such writs, at any time before the actual sale of the property levied on; and such officers shall pay to such miners, laborers, mechanics, and

Officers to pay claims out of proceeds of sale.

clerks, out of the proceeds of sale, the amount each is justly and legally entitled to receive, not exceeding two hundred dollars.

Section 3. In all cases of the death, insolvency, or assignment of any person or persons, or chartered company, engaged in operations as hereinbefore mentioned, or of executions issued against them, the lien of preference mentioned in the first section of this act, with the like limitations and powers, shall extend to every property of said persons or chartered company.

Preference in cases of death, insolvency, or assignment.

Section 4. That no mortgage, or other instrument by which a lien is hereafter credited shall operate to impair or postpone the lien and preference given and secured to the wages and moneys mentioned in the first section of this act: *Provided*, That no lien of mortgage or judgment entered before such labor is performed shall be affected or impaired thereby.

Other liens not to postpone preference given to wages.

Prior liens not to be impaired.

Section 5. That in all cases of appeal from the judgment of justice of the peace for wages or moneys mentioned in the first section of this act, the party appellant, his agent or attorney, shall make oath or affirmation, that it is not for the purpose of delay that such appeal is entered, but because he firmly believes injustice has been done; the bail required in cases of appeal from the judgments of justices of the peace, and from the awards of arbitrators for the wages and moneys mentioned in the first section of this act, shall be bail absolute in double the amount of said judgments and awards, and the probable amount of costs accrued and likely to accrue in such cases, with one or more sufficient sureties, conditioned for the payment of the amount of the debt, interest and cost that shall be legally recovered in such cases against the appellant.

Parties appealing from judgments of justices to make oaths.

Bail.

Section 6. That all laws or parts of laws inconsistent herewith be and the same are hereby repealed.

Repeal.

Approved, April 9, 1872.

A SUPPLEMENT

To an act for the better protection of the wages of mechanics, miners, laborers and others, approved April 9, 1872.

Section 1. Be it enacted, &c., That the proviso to the fourth section of an act, entitled "An act for the better protection of the wages of mechanics, miners, laborers and others," approved April 9, 1872, shall not hereafter be so construed as to in any manner apply to coal lease mortgage

Coal lease mortgages not to have preference of lien for wages.

or mortgages, or to make the same a lien preferred to the lien of the wages of labor mentioned in said act, but that such claim of wages shall be a lien preferred thereto.

Claim not required to be filed within three months after same becomes due.

Section 2. That the last proviso of the first section of said act, which is as follows: "No such claim shall be a lien upon any real estate, unless the same be filed in the prothonotary's office of the county in which such real estate is situated, in the same manner as mechanics' liens are now filed." be and the same is hereby repealed.

Repeal.

Section 3. That all acts or parts of acts inconsistent herewith are hereby repealed.

APPROVED, May 8, 1874.

AN ACT

In relation to suits for wages, preventing stay of execution on judgments obtained for one hundred dollars or less.

Section 1. Be it enacted, &c., That no stay of execution shall be allowed on any judgment for one hundred dollars and less, when the same has been recovered for wages of manual labor.

APPROVED, May 14th, 1874.

AN ACT

Regulating appeals from the judgment of justices of the peace and aldermen in this commonwealth for the wages of manual labor, and prescribing the effect of voluntary assignments upon claims for the wages of labor, secured by an act for the better protection of the wages of mechanics, miners, laborers and others, approved April 8th, 1872.

Appellants to take oath.

Section 1. Be it enacted, &c., That in all cases in which judgment shall have been rendered by any justice of the peace or alderman in this commonwealth for wages of manual labor, that before the defendant shall be entitled to an appeal from the judgment of the justice or alderman, he or his agent or attorney, shall make oath or affirmation that the appeal is not intended for the purpose of delay, but that he believes that injustice has been done him, which affidavit

To be attached to transcript.

shall be attached to and sent up with the transcript of appeals: and the said defendant shall be required to give good

Bond to be given.

and sufficient bail for the payment of the debt and costs, to be paid when finally adjudged to be due the plaintiff by the Court in all cases of labor.

Assignments not to delay collection of claims longer than thirty days.

Section 2. That no voluntary assignment for the benefit of creditors shall operate so as to hinder, delay or prevent for a longer period than thirty days from the time of such assignment, the collection or enforcement of any of the claims for the wages of labor secured and protected by the act for the better protection of the wages of mechanics, miners, laborers and others, approved the ninth day of April, 1872, or its supplements; and the said claimants may, after the expiration of thirty days from the date of such assignment, enforce the collection of their claims in the same manner and by means of the same remedies that they might have done had no such assignment been made.

Provisions relative to assignments heretofore made.

Section 3. In all cases of voluntary assignments heretofore made and now remaining unsettled, and in which the assignee or assignees has or have more than five months within which to settle his or their account or accounts, any or all of the claimants protected by the provisions of the aforesaid act or its supplements, may, immediately after the passage of this act, proceed to collect such claims just as though no such assignment had been made; and in case such assigned property has already been sold, and the assignee or assignees refuse to pay such claimants the amount legally due them, they shall have the right to compel him or them to file his or their account, and may proceed to have said claims paid by a distribution through an auditor or auditors according to law: *Provided however*, That the owner or owners of such assigned property or the assignee or assignees or any interested party may pay to such claimants the amount of the claims so protected by said act or its supplements, and be subrogated to the rights of the claimants to the extent of such payments.

Section 4. All acts or parts of acts inconsistent herewith are hereby to such extent repealed.

APPROVED, April 20th, 1876.

AN ACT

Giving priority in the trial of all claims for the wages of manual labor in the courts in this commonwealth.

Section 1. Be it enacted, &c., That in all cases now pending, or which may hereafter be brought, before any court in this commonwealth, for the recovery of the wages of manual labor only, it shall be the duty of the prothonotary preparing the list of civil cases to place all claims for the wages of labor first on the list, and the court shall proceed

to try all such cases as they occur on the list: *Provided*, That a statement of the plaintiff's claim be filed in such cases, showing that the claims respectively are for manual labor alone.

APPROVED, March 22d, 1877.

A FURTHER SUPPLEMENT

To an act, entitled "An act for the better protection of the wages of mechanics, laborers and others," passed the ninth day of April, 1872.

Laborers claims to have preference of claims for rent, where lessee is the employer.

Section 1. Be it enacted, &c., That it is the true intent and meaning of the provisions of the act of assembly entitled "An act for the better protection of the wages of mechanics, miners, laborers and others," passed the ninth day of April, 1872, that the several classes of laborers in said act mentioned shall have a preference over landlords, in all claims for rent of any mines, manufactories or other real estate, held under lease, where the lessee or lessees are the parties employing the miners, mechanics, laborers or clerks: *Provided*, That any person or persons claiming a preference as above provided, shall give notice of the nature and amount of his claim to the landlord or his bailiff, before the actual sale of the property levied upon.

APPROVED, June 12th, 1878.

AN ACT

To enable laborers to secure and collect their pay for work done in and about the stocking of saw-logs.

Wages of laborers to have priority.

Section 1. Be it enacted, &c., That all moneys that may be due from any person or persons to any and every laborer, for work done in and about the cutting, peeling, skidding, hauling and driving of saw-logs, for a period not exceeding six months prior to the death or assignment for the benefit of creditors of the employer or employers, or to a sale of said saw-logs upon execution, process against said employer, or employers, shall be preferred and first paid out of the proceeds of any executor's, administrator's, assignee's, sheriff's or other officer's sale of said saw-logs as the property of the employer or employers: *Provided*, That not more than two hundred dollars to any one laborer shall be preferred under this act.

Limitation.

Notice of claims to be given before sales.

Section 2. It shall be the duty of every laborer claiming a preference under this act, by himself, his agent or attorney, to give notice in writing of the amount of his claim,

before the sale, to the executors, administrators, assignee, sheriff, or other officer whose duty it shall be to sell said saw-logs, otherwise his claim shall not be preferred under this act.

Court to hear and determine disputes.

Section 3. When there shall be any dispute concerning the right of any laborer to be preferred as aforesaid, or as to the amount he shall be entitled to receive, the court having jurisdiction of the accounts of the officer making the sale, or of the process under which the sale is made, shall have power, after reasonable notice given either personally or by advertisement, to hear and determine the same according to law and equity.

Section 4. When work as aforesaid shall have been done for a contractor or contractors and not for the owner or owners of saw-logs, it shall be lawful for the owner or owners to make payments of any moneys due to any laborer or laborers for such work, directly to such laborer or laborers; and any payment or payments so made, shall be a good charge against the contractor or contractors in favor of the owner or owners in the settlement of their accounts.

APPROVED, June 12th, 1879.

INSPECTION OF MINES—ANTHRACITE.

A ACT

Providing for the health and safety of persons employed in anthracite coal mines.

Owners or agents to cause maps of workings of mines to be made.

Section 1. Be it enacted, etc., That the owner or agent of every anthracite coal mine or colliery shall make, or cause to be made, an accurate map or plan of the workings of such coal mine or colliery, on a scale of one hundred feet to the inch; and when there is more than one seam of coal worked in said coal mine or colliery, the map or plan shall exhibit the workings in each seam of coal, and shall state the general inclination of the strata, with any material deflection therein in said workings, and the boundary lines of the lands of said coal mines or colliery; a true copy of which map or plan, the said owner or agent shall deposit with the inspectors of coal mines and collieries for the district in which the coal mine or colliery is situated, within four months from the passage of this act, and one copy shall be kept at the office of each colliery; and the said owner or agent shall furnish to the inspector aforesaid, on the first day of January and July, in every year hereafter, a statement, or map or plan of the progress of the workings of such

Copies, with whom deposited, etc.

To furnish inspector statement of progress of workings on certain days.

coal mine or colliery, during the year past, up to date, to enable the inspector to mark the same upon the map or plan of the coal mine or colliery, furnished and deposited with said inspector as hereinbefore provided for; and when any coal mine or colliery is worked out, preparatory to being abandoned, when any level or lift thereof is being finished, with a view and for the purpose of being abandoned, or when any of the pillars therein are to be removed, the owner or agent of such coal mine or colliery shall have the map or plan thereof furnished as hereinbefore provided, or such portions thereof as the case may require, carefully verified, and notice shall be given to the inspector of coal mines and collieries for the district, in writing, of the purpose to abandon or remove the pillars, as the case may be.

To furnish plan and notify inspector before abandoning mines, etc.

Section 2. That whenever the owner or agent of any coal mine or colliery shall neglect or refuse, or from any cause fail for the period of two months, to furnish to the inspector the map or plan, or the addition thereto provided for in the first section of this act, or if the inspector finds or has reason to believe, that any plan or map of any coal mine or colliery furnished him under the provisions of this act, is materially inaccurate or imperfect, he is hereby authorized to cause an accurate map or plan of the actual workings of such coal mine or colliery to be made, at the expense of the owner thereof, the cost of which shall be recoverable by law, as other debts are, from said owner.

In what cases inspectors may have maps made at expense of owners.

Section 3. That four months from and after the passage of this act, it shall not be lawful for the owner or agent of any anthracite coal mine or colliery, worked by or through a shaft or slope, to employ any person in working within such coal mine or colliery, or to permit any person to be in such coal mine or colliery, for the purpose of working therein, unless there are in communication with every seam or stratum of coal worked in such coal mine or colliery, for the time being at work, at least two shafts, or slopes, or outlets, separated by natural strata, of not less than one hundred and fifty feet in breadth, by which shafts, slopes or outlets distinct means of ingress and egress are always available to the persons employed in the coal mine or colliery; but it shall not be necessary for the two shafts, slopes, or outlets to belong to the same coal mine or colliery, if the persons therein employed have ready and available means of ingress or egress by not less than two shafts, slopes or outlets, one or more of which may belong to another coal mine or colliery: *Provided*, That a second open-

Employment of persons in mines worked by shaft, etc., prohibited unless two outlets to each coal seam.

In what cases unnecessary for two outlets to belong to same mine.

ing can be had through coal; but if a tunnel or shaft will be required for the additional opening, work upon the same shall commence immediately after the passage of this act, and continue until its final completion, with not less than three shifts in each twenty-four hours, and as many hands to be employed as can be put to work to advantage, the inspector to be the judge as to the least number of hands engaged per shift; this section shall not apply to opening a new coal mine or colliery, nor to any working for the purpose of making a communication between two or more shafts, slopes or outlets, so long as not more than twenty persons are employed at any one time in said new mine or working; and the term owner, used in this act, shall mean the immediate proprietor, lessee or occupier of a coal mine or colliery, or of any part thereof; and the term agent shall mean any person having, on behalf of the owner, the care or direction of a coal mine or colliery, or of any part thereof.

If tunnels, etc., be required for additional opening, work upon the same to commence at once.

Section not to apply to opening new mines, etc.

Terms "owner" and "agent," construed.

Section 4. The owner or agent of any coal mine or colliery, to which there is only one shaft, slope, or outlet, may petition the court of common pleas in and for the county in which such coal mine or colliery is situated, which said court is hereby empowered to act in the premises, setting forth that in consequence of intervening lands between the working of his coal mine or colliery and the most practicable point, or the only practicable point, as the case may be, at which to make or bring to the surface from the working of his mine, he is unable to make an additional shaft, slope, or outlet, in accordance with the requirements of this act; whereupon the court may make an order of reference, and appoint three disinterested persons, residents of the county, viewers, one or more of whom shall be practical mining engineers; all of whom, after being sworn to a faithful discharge of their duties, shall view and examine the premises, and determine as to whether the owner ought, or ought not, under the circumstances, to have the privilege of making an additional outlet through or upon any intervening lands, as the case may require, and report in writing to the next term of the court, which report shall be entered and filed of record; if the finding of the viewers, or any two of them is in favor of the owner of such coal mine or colliery, he may make an additional shaft, slope, or outlet, under, through, or upon intervening lands, as may be determined upon and provided for by the award; if the finding of the viewers is against the owner, or if no award be made, by reason of any default or neglect on the part of the owner, he shall be

Proceedings to obtain authority to make additional outlet upon intervening lands.

bound to comply with the provisions of this act, in the same manner as if this section had not been enacted; in case the said owner or agent desires to, and claims that he ought to make an additional opening under, through, or upon any adjoining or intervening lands, to meet the requirements of this act, for the ingress or egress of the men employed in his or their coal mine or colliery, he or they shall make a statement of the facts in the petition, with a survey setting out the point of commencement and the point of termination of the proposed outlet, which he or they, their engineers, agents, and artists may enter upon said intervening land and survey, and mark as he or they shall find it proper to adopt for such additional outlet, doing no damage to the property explored; and the viewers shall state in their report what damage will be sustained by the owner or owners of the intervening lands by the opening, constructing, and using of the outlet, and if the report is not appealed from, it shall be liable to be confirmed or rejected by said court, as to right and justice shall appertain; and any further and all proceedings in relation thereto shall be in conformity with like proceedings as in the case of a lateral railroad across or under intervening lands, under the act in relation to lateral railroads, approved the fifth day of May, one thousand eight hundred and thirty-two, and the supplements thereto, so far as the provisions of the same are applicable hereto; and the notices to the owner of intervening lands of the intention to apply for the privilege of making an outlet and of the meeting of the viewers shall be given, and the costs of the case shall be paid, as provided in the said act of the fifth of May, eighteen hundred and thirty-two, and the supplements thereto.

Courts, upon application of inspectors to prohibit workings of mines in contravention of act.

Section 5. Any of the courts of law or equity of this commonwealth, having jurisdiction where the coal mine or colliery proceeded against is situated, upon application of the inspector of coal mines and collieries of the proper district, acting in behalf of the commonwealth, shall prohibit by injunction or otherwise, the working of any mine in which any person is employed in working, or is permitted to be for the purpose of working in contravention of the provisions of this act, and may award such costs in the matter of the injunction or other proceeding as the court may think just; but this section shall be without prejudice to any other remedy permitted by law for enforcing the provisions of this act.

Building for use of men to be erected at mouth of mine.

Section 6. The owner, lessee, operator or agent of every coal mine or colliery, shall erect or provide, at or near the mouth or entrance to such mine, and maintain the same at all times when men are employed in such mine, a suitable building or buildings, supplied with soft water and properly lighted and warmed, for the use of the men employed in such mine, to wash and change their clothes when entering the mine and when returning therefrom.

Owners or agents to have mines properly ventilated.

Section 7. The owners or agent of every coal mine or colliery shall provide and establish for every such coal mine or colliery an adequate amount of ventilation of not less than fifty-five cubic feet per second of pure air, or thirty-three hundred feet per minute for every fifty men at work in such mine, and as much more as circumstances may require, which shall be circulated through to the face of each and every working place throughout the entire mine, to dilute and render harmless and expel therefrom the noxious, poisonous gases to such an extent that the entire mine shall be in a fit state for men to work therein, and be free from danger to the health and lives of the men by reason of said noxious and poisonous gases, and all workings shall be kept clear of standing gas; the ventilation may be produced by using blowing engines, forcing pumps, air pumps, forcing or suction fans of sufficient capacity and power, or other suitable appliances, as to produce and insure constantly an abundant supply of fresh air throughout the entire mine; but in no case shall a furnace be used in the mine where the coal breaker and schute buildings are built directly over and covering the top of the shaft for the purpose of producing a hot upcast of air, and there shall be an intake air-way of not less than twenty square feet area, and the return air-way shall not be less than twenty-five square feet.

Ventilation, how produced.

Use of furnace, etc.

Mining boss, and his duties.

Section 8. The better to secure the ventilation of every coal mine and colliery, and to provide for the health and safety of the men employed therein, otherwise and in every respect, the owner or agent, as the case may be, in charge of every coal mine or colliery, shall employ a competent and practical inside overseer, to be called mining boss, who shall keep a careful watch over the ventilating apparatus, over the air-ways, the traveling-ways, the pumps and sumps, the timbering, to see, as the miners advance in their excavations, that all loose coal, slate or rock overhead is carefully secured against falling over the arrangements for signalling from the bottom to the top and from the top to the bottom of the shaft or slope, for the purpose of talking

through, and all things connected with and appertaining to the safety of the men at work in the mine; he or his assistants shall examine carefully the working of all mines generating explosive gases every morning before the miners enter the coal mine or colliery, and shall ascertain that the mine is free from danger; and the workmen shall not enter the mine until such examination has been made and reported, and the cause of danger, if any exist, be removed; and he or his assistant shall also, every evening, when the workmen leave the mine or colliery, go over the mine and see that the doors of the passage ways are all properly closed and that all the air ways are free and unobstructed to the passage of air through them; and it shall be the duty of the mine boss to measure the ventilation at least once per week at the inlet and outlet, also at or near the face of all gangways; and all measurements to be reported to the inspector once per month.

Safety-lamps.

Section 9. All and every of the safety-lamps used in coal mines or collieries shall be the property of the owner thereof, and shall be under the charge of a suitable person, under direction of the mining boss, who shall keep them clean and in good order; and the mining boss shall provide that

Doors.

all doors used in assisting, or in any way affecting ventilation of the mine, shall be so hung and adjusted as that they will close of their own accord, and cannot stand open; and the main air doors on the traveling roads shall be double, and an extra door shall be fixed, to be closed only in case of an accident to one of the others, and the side and top of such door shall be well built with stones and mortar, in mines in which the inspector shall deem it necessary and shall so order; and all main doors shall be provided with an attendant, whose constant duty shall be to guard them and prevent them being left open; and every mine having explo-

Mines containing explosive gases, how divided, etc.

sive gas, in each and every part of such mine or mines, shall be divided into two, four or more panels or districts, each ventilated by a separate spit or current of air, and fifty persons shall be the greatest number that shall work in any

When bore holes to be kept certain distance in advance of face or sides.

one panel or district at the same time; and bore holes shall be kept twenty feet in advance of the face of each and every place, and if necessary, on both sides, when the same is driven towards or approaching an abandoned mine, or part of mine suspected to contain inflammable gases, or which is inundated with water.

Section 10. The owner or agent of every coal mine or colliery, opened and operated by shaft or slope, shall pro-

vide and maintain a metal tube from the top to the bottom of such slope or shaft, suitably calculated and adapted to the free passage of sound therein, through which conversation may be held by and between persons at the bottom and the top of the shaft or slope, and also the ordinary means of signalling from and to the top of the shaft from the bottom, and also provide an improved safety-catch and a sufficient cover overhead on every carriage used for lowering or hoisting persons; and they shall provide and arrange the flangs or horns of sufficient dimensions are attached to the sides of the drum of every machine that is used for lowering or hoisting persons in or out of every mine; an adequate break shall be attached to every drum or machine worked by steam or water power that is or will be used for lowering or raising into or out of any said mines, and the main link attached to the swivel of the wire, or any other rope, shall be made of the best quality of iron and tested by weights, or otherwise satisfactorily to the inspector, and bridle chains shall be attached to the main link from the cross pieces of the carriage, and no single link chain shall be used for lowering or raising persons into or out of any said mines; and no boy under twelve years of age shall work or enter any mine, and proof must be given of his age by certificate or otherwise, before he shall be employed; and no father or any other person shall conceal or misrepresent the age of any boy; the neglect or refusal of any person or party to perform the duties provided for and required to be performed by sections six, seven, eight, nine and ten of this act, by the parties therein required to perform them, shall be taken and be deemed a misdemeanor by them, or either or any of them, and upon conviction thereof they or any or either of them shall be punished by imprisonment and fine of not exceeding five hundred dollars, or either, at the discretion of the court trying the same.

Mines worked by shaft or slope to be provided with metal tubes for conversing through, etc.

Lowering and hoisting machine, relative to.

Boys under certain age not to work in mines.

Neglect to perform duties required by certain sections.

Section 11. No owner or agent of, or at any coal mine or colliery operated by shaft or slope, shall place in charge of any engine whereby the men are lowered into or hoisted out of the mine, any but experienced, competent, sober engineers; and every engineer so placed in charge of an engine shall constantly attend to the engine of which he has charge, and shall not allow any person, except such as may be deputed by the operator or agent, to touch or meddle with it or any part of its machinery; he shall work the engine slowly with great care when any person is ascending or descending the shaft or slope, and when any person is about to descend or

Qualifications and duties of engineers in charge of lowering and hoisting engines.

ascend the shaft or slope, the men at the bottom, or top, as the case may be, must inform the engineer, by the metal tube, the signal, or otherwise, thereof; and no one shall interfere with, or in any manner intimidate, the engineer in the discharge of his duties, nor ride upon a loaded wagon or cage, in any shaft or slope, and in no case shall more than ten men ride on any wagon or cage at one time in any of the said mines; and upon any person violating the provisions of this section he shall be held and deemed guilty of a misdemeanor, and upon conviction thereof he shall be punished by fine and imprisonment, at the discretion of the court trying the same.

Interfering with engineers, riding upon loaded wagons in shafts, etc., prohibited.

Persons in charge of mines to notify inspectors and coroners when accidents occur.

Section 12. Whenever loss of life, or serious personal injury to any person shall occur, by reason of any explosion or other accident whatever, in or about any coal mine or colliery, it shall be the duty of the party having charge of such coal mine or colliery to give notice thereof forthwith, by mail or otherwise, to the inspector of coal mines and collieries for the district, and to the coroner of the county, if any person is killed thereby; and due notice shall be given, by the coroner, or any inquest to be held as the result of any such explosion or accident; and it shall be the duty of the said inspector to immediately repair to the scene of the accident and make such suggestions as may appear necessary to secure the safety of the men; and if the results of the explosion do not require an investigation by the coroner, he shall investigate into and ascertain the cause of the explosion or accident, and make a record thereof, which he shall preserve with other records of his office; and to enable him to make the investigations, he shall have power upon such occasions to compel the attendance of persons to testify, and to administer oaths or affirmations thereto; the cost of which investigation shall be paid by the county in which the accident occurred, in the same manner as costs of inquests held by the coroner or justices of peace are now paid; and the failure of the person in charge of the coal mine or colliery, to give notice to the inspector or coroner, as provided for in this section, shall subject him to a fine of not less than twenty-five, nor more than one hundred dollars, to be recovered as other fines are to the county treasury.

Duty of inspectors

Powers of inspectors.

Payment of costs of investigations.

Failure to notify inspectors, etc.

Boilers to be kept in good order and inspected.

Section 13. All boilers used for generating steam in and about coal mines or collieries shall be kept in good order, and the owner or agent thereof shall have them examined and inspected by a competent boiler-maker, or other well

qualified person, as often as once in six months, and oftener if needed, and the result of every such examination, under oath shall be certified in writing to the inspector for the district; and all machinery in and about the mines, and especially in the coal breakers, where boys work, shall be properly fenced off, and the top of each shaft shall be securely fenced by vertical or flat gates, covering the area of said shaft, and the entrance of every abandoned slope, and air or other shaft, shall be securely fenced off.

Machinery in mines, tops of shafts, etc., to be fenced off.

Section 14. Upon the passage of this act, the governor of the commonwealth of Pennsylvania shall, upon the recommendation of a board of examiners, selected for that purpose, composed of three reputable coal miners in practice, and two reputable mining engineers, to be appointed by the judges of the court of common pleas of Luzerne county, all of whom shall be sworn to a faithful discharge of their duties, appoint three properly qualified persons to fill the offices of inspectors of coal mines and collieries for the counties of Luzerne and Carbon, whose commissions shall be for a term of five years or during good behavior, but they shall at all times be subject to removal from office for neglect of duty or malfeasance in the discharge of duty, as hereinafter provided for, and the persons so appointed shall have attained the age of thirty years, be citizens of Pennsylvania, and have a knowledge of the different systems of working coal mines, and have been intimately connected with the anthracite coal mines of Pennsylvania for a period of five years, and have had experience on the working and ventilation of coal mines where fire-damp and noxious gases are evolved; before entering upon their duties they shall take an oath or affirmation, before an officer qualified to administer the same, that they will perform the duties of the office with impartiality and fidelity, which oath or affirmation shall be filed in the office of the prothonotary of the county; and they shall provide themselves with the most approved modern instruments and chemical tests for carrying out the intentions of this act; the examiners provided for in this act shall be appointed by the judges of the court of common pleas for the county at the first term of the court in each year, to hold their places during the year, and vacancies shall be filled by the court as they occur; and the said examiners shall meet whenever candidates for the office of inspector are to be appointed, of which meetings public notice shall be given in at least two papers published in the county, at least two weeks before the meeting, the exam-

Appointments, etc. of inspectors and examiners for Luzerne and Carbon counties.

iners shall agree in their recommendation of candidates to the governor, and they shall recommend only such as they find qualified for the office; the said examiners shall receive three dollars per day for every day they are actually engaged in the discharge of the duties of examiners under this act, to be paid to them by the county; one inspector shall be appointed for the district in the Wyoming coal field, Luzerne county, lying east of, and including Jenkins township, and one district shall be composed of that part of the Wyoming coal field lying west of Jenkins township and west of the Susquehanna river, and one other district shall be composed of that part of Luzerne county lying south of the Wyoming coal field, together with Carbon county.

Compensation of examiners.

Districts for which inspectors are to appointed.

Section 15. The term of office of the inspector of coal mines, appointed under an act for the better regulation and ventilation of mines, and for the protection of the lives of miners in the county of Schuylkill, approved April twelfth, one thousand eight hundred and sixty nine, shall expire on the first day of June, Anno Domini, one thousand eight hundred and seventy, and in his room three inspectors of mines for the counties of Schuylkill, Dauphin, Northumberland and Columbia, shall be appointed by examiners to be appointed by the court of common pleas of Schuylkill county, in the manner and form provided by the fourteenth section of this act; and the said examiners and inspectors, when so appointed, shall be subject to like regulations and duties, and entitled to like privileges, franchises and salaries as are in said section provided for the examiners and inspectors for the counties of Luzerne and Carbon; and the inspectors for the said counties of Schuylkill, Dauphin, Northumberland and Columbia, shall be assigned to duty in separate districts in said counties, which said districts shall be laid out and fixed by the examiners, so as aforesaid to be appointed by the court of common pleas of the county of Schuylkill.

Appointments, etc. of inspectors for Schuylkill, Dauphin, Northumberland and Columbia counties.

Section 16. It shall be the duty of the court of common pleas of the proper county, whenever a petition signed by not less than fifteen reputable coal operators or coal miners, or both, setting forth that any inspector of coal mines and collieries grossly neglects the duties, or that he is incompetent, or that he is guilty of malfeasance in office, to issue a citation in the name of the commonwealth, to the said inspector, to appear at not less than fifteen days' notice, on a day fixed, before said judges, when the said court shall

Removal of inspectors for neglect of duties, etc., relative to.

proceed to inquire into and investigate the allegations of the petitioners; and if the court find that the said inspector is grossly neglectful of his duties, or that he is by any reason of causes that existed before the appointment, or that have arisen since his appointment, incompetent to perform the duties of said office, or that he is guilty of malfeasance in office, the court shall certify the same to the governor of the commonwealth, who shall declare the office of inspector of the district vacant, and proceed in compliance with the provisions of this act, to appoint a properly qualified person to fill the office; and the cost of the said investigation, before the court, shall be borne by the removed inspector; but if the allegations of the petitioners are not sustained by the final judgment of the court, the costs shall be paid by the petitioners.

Salary of inspectors.

Section 17. The salary of the said inspectors appointed for Luzerne and Carbon counties shall be three thousand dollars each; the maps and plans of mines and the records thereof, together with all papers relating thereto, shall be kept by the inspector, properly arranged and preserved in a convenient place in the district for which each inspector shall have been appointed.

Custody of maps, etc.

Inspectors to give their whole time to duties of office.

Section 18. Each of the said inspectors of coal mines and collieries shall give his whole time and attention to the duties of the office, and it shall be his duty to examine all the coal mines and collieries in his district, as often as his duties will permit him to do so, to see that every necessary precaution is taken to secure the safety of the workingmen, to see that the provisions of this act are observed and obeyed; and it shall be each inspector's duty to attend at every inquest held by coroner or coroners in his district, upon bodies of persons killed in or about coal mines or collieries.

To attend coroner's inquests.

Penalty for injuring safety-lamps carrying lighted, pipes, etc.

Section 19. That any miner, workman, or other person, who shall knowingly injure any safety lamp, water guage, barometer, air-course, brattice, or obstruct or throw open air-ways, or carry lighted pipes or matches into places that are worked by safety lamps, or hand or disturb any part of the machinery of the hoisting engine, or open a door and not have the same closed, whereby danger is caused in the mine, or enter any place of the mine against caution, or disobey any order given in carrying this act, or shall ride upon a loaded car or carriage in any shaft or slope, or on any plane in or around any of said mines, or do any other act whereby the lives or health of persons, or the security of the mines or machinery, is endangered; or any miner

having charge of a working place in any coal mine or colliery, who shall neglect or refuse to keep the roof thereof properly propped and timbered, to prevent the falling of coal slate or rock, every such person shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by imprisonment and fine at the discretion of the court.

Inspectors may enter mines at all reasonable times in performance of duties.

Section 20. It shall be lawful for any inspector to enter, inspect, and examine any coal mine or colliery of his district, and the works and machinery belonging thereto, at all reasonable times, by day or night, but so as not to impede or obstruct the working of the coal mine or colliery, and to make inquiry into and touching the state and condition of such coal mine or colliery, works and machinery, and the ventilation and drainage of such coal mine or colliery, and the mode of lighting or using lights in the same, and into all matters and things connected with or relating to the health and safety of the persons employed in or about the same, and especially to make inquiry whether the provisions of this act are complied with in relation to such coal mine or colliery; and the owner or agent of such coal mine or colliery is hereby required to furnish the means necessary for such entry, inspection, examination, and inquiry, of which the said inspector shall make an entry in the record in his office, noting the time and material circumstances of the inpection.

Certain persons prohibited from acting as inspectors.

Section 21. No person who shall act or practice as a land agent, or as a manager, viewer, or agent of any coal mine or colliery, or as a mining engineer, or be interested in operating any coal mine or colliery, shall at the same time act as inspector of coal mines and collieries under this act.

Inspectors to make report to Governor.

Section 22. It shall be the duty of each inspector to make an annual report of his proceedings to the governor of the commonwealth, at the close of every year, in which he shall fully enumerate all the accidents in and about the coal mines and colleries of his district, marking in tabular form those accidents producing death, or serious injury to persons, and the state of the workings of said mines with regard to the safety of the workmen therein, and to the ventilation thereof, and the result of his labors generally shall be fully set forth.

Salaries and expenses, how paid.

Section 23. The salaries of each of the inspectors of coal mines and colleries, and the expenses of carrying into execution the provisions of this act, shall be paid by the state treasurer, out of the treasury of the commonwealth, upon the warrant of the president judge of the court of common pleas of Luzerne county for the salaries of the inspector for

Luzerne and Carbon counties, and upon the warrant of the president judge of the court of common pleas of Schuylkill county, for the inspectors for the counties of Schuylkill, Columbia, Northumberland and Dauphin; and all inspectors under this act shall reside in the district for which they are appointed.

Right of action to accrue to parties for injuries occasioned by violation of act, etc.

Section 24. That for any injury to person or property, occasioned by any violation of this act, or any willful failure to comply with its provisions by any owner, lessee or operator of any coal mine or opening, or on part of inspector to perform duty, a right of action shall accrue to the party injured, for any direct damages he may have sustained thereby; and in any case of loss of life, by reason of such violation or willful failure aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they shall have sustained.

Repeal.

Section 25. All laws of the commonwealth that are inconsistent with the provisions of this act are hereby repealed.

APPROVED, the third day of March, Anno Domini 1870.

A SUPPLEMENT

To an act, entitled "An Act providing for the health and safety of persons employed in coal mines," passed March 3d, 1870.

How inspectors to be appointed.

Section 1. Be it enacted, etc., That inspectors of coal mines and collieries, provided for in the fourteenth section of the act, entitled "An Act providing for the health and safety of persons employed in coal mines," approved the third day of March, Anno Domini one thousand eight hundred and seventy, shall and may be appointed by a majority of the board of examiners provided for in said act; should said board of examiners disagree in their selection of inspector, the judge of the court of common pleas of said counties have the power to dissolve the said board and appoint a new board of like qualifications, as aforesaid.

Repeal.

Section 2. All laws or parts of laws inconsistent with this act are hereby repealed.

APPROVED, the 25th day of April, A. D. 1873.

A SUPPLEMENT

To an act, entitled "An Act providing for the health and safety of persons employed in coal mines," passed March 3, 1870.

Section 1. Be it enacted, &c., That the first section of the said act be amended so as to read as follows, namely: That

Accurate map or plan of workings.

the owner or agent of every anthracite coal mine or colliery shall make, or cause to be made, an accurate map or plan of the workings of such coal mine or colliery, on a scale of not more than one hundred feet to the inch, which map or plan shall exhibit the workings in each seam of coal, and shall state the general inclination of the strata, with any material defection therein in said workings, and shall truthfully and accurately show the boundary lines of the land of the said coal mines or colliery, and proximity of the workings to the lines of adjacent owners, a true copy of which map or plan the said owner or agent shall deposit with the inspectors of coal mines or collieries for the district in which the coal mine or colliery is situated, within four months from the passage of this act, and one copy shall be kept at the office of each colliery; and the said owner or agent shall furnish to the inspector aforesaid on the first day of January and July in every year hereafter, a statement or map or plan of the progress of the workings of such coal mine or colliery during the six months past up to date, to enable the inspector to mark the same upon the map or plan of the map, or plan of the coal mine or colliery furnished and deposited with said inspector as hereinbefore provided for, and when any coal mine or colliery is worked out preparatory to be abandoned, or when any local lift thereof is being finished with a view and for the purpose of being abandoned, the owner or agent of such coal mine or colliery shall have the map or plan thereof furnished as hereinbefore provided, or such portions thereof as the case may require, carefully verified, and notice shall be given to the inspector of coal mines and collieries for the district in writing of the purpose to abandon; and in case the said owner or agent shall neglect or refuse to furnish the maps or plans by this section required, or any of them, or shall knowingly and designedly cause such maps or plans when furnished to be incorrect or false, such owner or agent thus offending shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding five hundred dollars, or imprisonment not exceeding three months, at the discretion of the court.

Notice to inspector.

APPROVED, the 8th day of May, A. D. 1876.

AN ACT

To repeal a portion of the sixth section of an act for the preservation of the records of the inspection of mines and mining districts of Schuylkill and Luzerne, embracing the coal regions of Pennsylvania, passed March 3d, 1870.

Qualifications of clerks.

Section 1. Be it enacted, etc., That section six of the act of Asssembly for the preservation of the records of the inspection of mines in the mining districts of Schuylkill and Luzerne, embracing coal regions of Pennsylvania, approved April fifth, Anno Domini, eighteen hundred and seventy, be amended by striking out the following words, namely: "And shall attain the age of thirty-five years" from said section so that said sixth section shall read: The said clerks shall be citizens of the United States of America, and shall be residents of the district for which they are appointed, and shall be conversant with the coal mines of their district for which they are appointed, and shall take an oath or affirmation before an officer properly qualified to administer the same, that he will faithfully discharge the duties of his office, to the satisfaction and under the direction of the judges of the courts, and as the interest of the people and the law requires, and shall, if discharged or removed, deliver over to the judges of the district, and to his successors, all papers, records, maps and things in his office, as the property of the State and district, and shall not be interested in the mining or transportation of coal.

APPROVED, the 12th day of April, A. D. 1878.

AN ACT

To amend section fourteenth of an act entitled "An act to provide for the health and safety of persons employed in coal mines," passed March 3, 1870.

Governor to appoint inspectors.

Section 1. Be it enacted, &c., That section fourteenth of an act, entitled "An act providing for the health and safety of persons employed in coal mines," be amended to read as follows: Upon the passage of this act the governor of the commonwealth of Pennsylvania shall, upon the recommendation of a board of examiners selected for that purpose, composed of three reputable coal miners in practice and two reputable mining engineers, to be appointed by the judges of the court of common pleas of Luzerne county, all of whom shall be sworn to a faithful discharge of their duties, appoint three properly qualified persons to fill the offices of inspectors of coal mines and collieries for the counties of Susquehanna, Wayne, Luzerne, and Carbon, whose commis-

Terms of office. Subject to removal. Qualifications. To be sworn. And provide themselves with tests. Appointment of examiners. Meetings. To recommend candidates. Compensation. Districts.

sions shall be for a term of five years or during good behavior; but they shall at all times be subject to removal from office for neglect of duty or malfeasance in the discharge of duty, as hereinafter provided for, and the persons so appointed shall have attained the age of thirty years, be citizens of Pennsylvania, and have a knowledge of the different systems of working coal mines, and have been intimately connected with the anthracite coal mines of Pennsylvania for a period of five years, and have had experience in the working and ventilation of coal mines where fire-damp and noxious gases are evolved. Before entering upon their duties they shall take an oath or affirmation before an officer qualified to administer the same, that they will perform the duties of the office with impartiality and fidelity, which oath or affirmation shall be filed in the office of the prothonotary of the county, and they shall provide themselves with the most approved modern instruments and chemical tests for carrying out the intentions of this act. The examiners provided for in this act shall be appointed by the judges of the court of common pleas for the county, at the first term of court in each year, to hold their places during the year, and vacancies be filled by the court as they occur; and the said examiners shall meet whenever candidates for the office of inspector are to be appointed, of which meetings public notice shall be given in at least two papers published in the county at least two weeks before the meeting; the examiners shall agree in their recommendation of candidates to the governor, and they shall recommend only such as they find qualified for the office; the said examiners shall receive three dollars per day for every day they are actually engaged in the discharge of the duties of examiners under this act, to be paid to them by the county. One inspector shall be appointed for the district in the Wyoming coal fields, which shall include Luzerne county lying east of including Jenkins township, and also so much of the counties of Wayne and Susquehanna in which coal is mined or may hereafter be mined, and one district shall be composed of that part of the Wyoming coal fields lying west of Jenkins township and west of the Susquehanna river, and one other district shall be composed of that part of Luzerne county lying south of the Wyoming coal field, together with Carbon county.

APPROVED, the 18th day of May, A. D. 1878.

AN ACT

Amendatory of an act, entitled "An Act providing for the health and safety of persons employed in coal mines, passed March 3d, 1870.

Act amended.

Section 1. Be it enacted, &c., That section eleven of an act, entitled "An act for the health and safety of persons employed in coal mines" approved the third day of March, one thousand eight hundred and seventy, which reads as follows: "No owner or agent of or at any coal mine or colliery operated by shaft or slope, shall place in charge of any engine whereby the men are lowered into or hoisted out of the mine any but experienced, competent, sober engineers; and every engineer so placed in charge of an engine, shall constantly attend to the engine of which he has charge, and shall not allow any person, except such as may be deputed by the operator or agent, to touch or meddle with it or any part of its machinery; he shall work his engine slowly and with great care when any person is ascending or descending the shaft or slope; and when any person is about to descend or ascend the shaft or slope the men at the bottom or top, as the case may be, must inform the engineer by the metal tube, the signal or otherwise, thereof; and no one shall interfere with or in any way intimidate the engineer in the discharge of his duties, or ride upon a loaded wagon or cage in any shaft or slope; and in no case shall more than ten men ride on any wagon or cage at any one time in any of said mines; and upon any person violating the provisions of this section, he shall be held and be deemed guilty of a misdemeanor, and upon conviction thereof he shall be punished by fine and imprisonment at the discretion of the court trying the same," be amended so as to read as follows: No owner or agent of or at any coal mine or colliery operated by shaft or slope, shall place in charge of any engine whereby the men are lowered into or hoisted out of the mine any but experienced, competent, sober engineers; and every engineer so placed in charge of an engine shall constantly attend to the engine of which he has charge, and he shall not allow any person except such as may be deputed by the operator or agent to touch or meddle with it or any part of its machinery; he shall work his engine slowly and with great care when any person is ascending or descending the shaft or slope, and when any person is about to descend or ascend the shaft or slope, the men at the bottom or top, as the case may be must inform the engineer by the metal tube, the signal or otherwise, thereof; and no one shall interfere with or in any way intimidate the engineer in

Qualifications and duties of engineers

Penalty for interfering with engineers.

the discharge of his duties, nor ride upon a loaded wagon or cage in any shaft or slope; and whenever ten men shall have arrived at the bottom of any shaft or slope, they shall be furnished with an empty wagon or cage to ride up; and in no case shall more than ten men ride on any wagon or cage at one time in any of said mines; and upon any person violating the provisions of this section, he shall be held and be deemed guilty of a misdemeanor, and upon conviction thereof he shall be punished by fine and imprisonment at the discretion of the court trying the same.

Men to be provided with cage to ascend slope.

Penalty for violating act.

APPROVED, the 22d day of May, A. D. 1879.

AN ACT

To provide for the selection of a site and erection of a State Hospital for injured persons, to be located in the counties of Schuylkill, Carbon, Dauphin, Northumberland, and Columbia, to be called the State Hospital for injured persons of the anthracite coal region, and for the management of the same, and making an appropriation therefor.

Governor to appoint commissioners.

Section 1. Be it enacted &c., That the Governor shall appoint six commissioners to select a site and build a hospital for injured persons, to be located in the anthracite coal region, embracing the counties of Schuylkill, Carbon, Northumberland, Columbia, and Dauphin, two of said commissioners to be chosen from the county of Schuylkill, and one from each of the other counties embraced within the said anthracite coal region aforesaid, who shall serve without compensation.

To select tract of land

Section 2. Said commissioners shall select, within four months of the date of their appointment, a tract of land within the said counties.

To be approved by Governor.

Section 3. Said tract of land so selected, shall be approved by the Governor in writing, and the deed for the same shall be taken in the name of the Commonwealth, in fee, for any land donated for the purpose aforesaid.

Plan of buildings.

Section 4. The commissioners shall adopt such plan for said hospital as shall involve an expenditure, exclusive of the land, of not over sixty thousand dollars when completed: *Provided*, That the plan of the building shall be approved by the Board of Public Charities: *Provided further*, That the land before provided for shall be donated.

Land to be donated.

Power to fix salaries.

Section 5. The said commissioners shall have power to fix the salary of the superintendent of construction, and of such other persons as they may think necessary to employ

in order to secure the proper and economical construction of the buildings: *Provided*, That the total expense of said buildings shall not exceed sixty thousand dollars. Expense limited.

Section 6. To enable the commissioners to make necessary preparations for the erection of the buildings herein provided for, the sum of thirty thousand dollars is hereby appropriated annually for the years one thousand eight hundred and eighty and one thousand eight hundred and eighty-one, to be drawn from the treasury as may be required in the erection of buildings herein before described, on warrants signed by the chairman of the commission, and countersigned by the president or general agent of the Board of Public Charities. Appropriation made.

Section 7. Said commissioners shall proceed to erect said buildings and complete the same, at as early a period as possible compatible with the economical, substantial and skillful execution of the work, and shall make report to the Board of Public Charities of the amount of money expended by them and of the progress made in the erection of the buildings, semi-annually at least, and oftener if so required by said board. Erection of buildings

Section 8. The said commissioners, upon the completion of said hospital, shall surrender their trust to a board of managers, to consist of nine members to be appointed by the Governor from the counties named in the first section of this act; said managers or trustees shall be a body politic or corporate, by the name and style of the trustees of the State Hospital for Injured Persons of the Anthracite Coal Region of Pennsylvania; they shall serve without compensation, and shall manage and direct the concerns of the institution, and make all necessary by-laws and regulations not inconsistent with the constitution and laws of the Commonwealth. Upon completion, trust to be surrendered to managers. To be a body politic. Name. Power.

Section 9. That this hospital shall be specially devoted to the reception, care and treatment of injured persons, and that in the order of admission this class shall have precedence over paying patients. To be devoted to treatment of injured persons.

Section 10. That the Governor, judges of the several courts of record of this Commonwealth, and members of the Legislature, shall be *ex-officio* visitors of the institution. Visitors.

Approved, June 11, 1879.

AN ACT

To provide proper means of conveyance of persons, injured in or about the mines, to their homes.

Coal operators to provide ambulance or stretchers for each colliery.

Section 1. Be it enacted, &c., That from and after the passage of this act, every individual, firm or corporation, engaged in the mining of anthracite coal in this Commonwealth, shall keep at every colliery, worked by said individual, firm or corporation, except as hereafter provided, an ambulance or two stretchers, properly constructed, as the mine inspector of the district may deem the most suitable, for the purpose of conveying, to their homes or boarding houses, any person injured in or about the colliery or mine of such operator or operators, while engaged at his usual or temporary employment.

How ambulance to be constructed.

Section 2. If an ambulance, it shall be a closed vehicle with windows, and shall be of sufficient size to convey at least two injured persons, with two attendants, at the same time, and shall be provided with suitable springs, mattresses with roller beds, which may be removed at pleasure, into or from the vehicle, seats for the accommodation of attendants, and sufficient covering for the protection and comfort of the injured: and in all cases the injured person shall be conveyed to his home or boarding-house in said ambulance or stretcher, except as in cases hereinafter named.

What it shall be provided with.

To be in charge of superintendent at colliery.

Section 3. Such ambulance or stretcher shall be in charge of one of the superintendents of the colliery or collieries, and in his absence of some person convenient to the colliery, and shall always be kept under cover and in readiness for use.

When railway may be used instead.

Section 4. In case the distance from the colliery, to the home or boarding-house of the injured person, is such that he may be quicker and more conveniently carried by railway, then such a mode of conveyance shall be permitted: *Provided always*, That such conveyance be under cover, and the comfort of the injured person be duly provided for.

Duties of mine inspectors.

Section 5. It shall be the duty of the mine inspectors of the several anthracite coal districts in the State to notify, immediately after the passage of this act, every individual, firm or corporation engaged in the mining of coal in their respective districts, of the requirements of this act, and, not

later than six months after such notification, they shall personally visit every colliery in their respective districts, and in case they shall find that any operator or operators have neglected or refused to comply with the requirements of this act, the said inspectors shall, or any other citizen may, forthwith institute proceedings against said operator or operators, before any alderman, magistrate or justice of the peace, in the county where such colliery or collieries are located.

Section 6. In case of the neglect or refusal of any individual, firm or corporation to comply with the requirements of this act, they shall be subject to a penalty of one hundred and fifty dollars, after hearing and conviction before any alderman or justice of the peace, on the report of said mine inspector, and in default of payment of the same shall be imprisoned for thirty days, unless defendant enter bail for his appearance at next term of quarter sessions, to be tried as for a misdemeanor, and upon conviction said court shall impose a fine, not exceeding said one hundred and fifty dollars. Penalty.

Section 7. This act shall not apply to individuals or companies employing less than twenty persons. Act not to apply.

Section 8. Where two or more collieries are situated not further than one mile apart, one ambulance shall be sufficient for such collieries: *Provided*, It be kept conveniently to each of them. When one ambulance sufficient.

Approved, May 10, 1881.

AN ACT

Making an appropriation for the hospital for injured persons of the anthracite coal region.

Section 1. Be it enacted &c., That the sum of ten thousand dollars, in quarterly payments commencing June first, one thousand eight hundred and eighty-one, is hereby appropriated, and the state treasurer directed to pay the same, to the commissioners appointed to build a hospital for injured persons in the five counties of the anthracite coal region, approved June eleventh, one thousand eight hundred and seventy-nine, to enable the said commissioners to pay Hospital for injured persons in anthracite coal region. Appropriations.

for the grading and excavating grounds, in addition to the cost of the building they the said commissioners were empowered to locate and build by the above mentioned act; also, for furnishing and maintaining the said hospital, the further sum of six thousand dollars for the year one thousand eight hundred and eighty-one, and six thousand dollars for the year one thousand eight hundred and eighty-two.

APPROVED, June 29, 1881.

INSPECTION OF MINES—BITUMINOUS.

AN ACT

Providing the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania.

Plans of mines to be made.

Section 1. Be it enacted, etc., That the owner or agent of every bituminous coal mine or colliery, shall make or cause to be made, within six months after the passage of this act, an accurate map or plan of the workings of such coal mine or colliery, on a scale not exceeding one hundred feet to the inch, and showing the bearings and distances, which shall be kept for use of the inspector, in the office at the mine of said coal mine or colliery; and said owner or agent shall cause, on or before the tenth of January in every year, a plan of the progress of the workings of such coal mine during the year past to be marked on the original map or plan of the said coal mine or colliery, and the inspector shall have the right at all times to have possession of any such map or plan at the mines to draw a copy therefrom for his own convenience: *Provided*, If the owner or agent of any coal mine shall neglect or refuse, or from any cause fail, for the period of two months after the time prescribed, to furnish the said map or plan as hereby required, or if the inspector shall find or have reason to believe that any map or plan of any coal mine furnished in pursuance of the provisions of this act is materially inaccurate or imperfect, he is hereby authorized to cause a correct map or plan of the actual workings of said coal mine to be made at the expense of the owner thereof, the cost of which shall be recoverable from said owner as other debts are recoverable by law: *Provided*, That if the map or plan which he claimed to be incorrect shall prove to be correct, then afore-

To be kept for the use of inspectors.

Plans or progress of mining.

When inspectors to prepare plans at expense of owners.

said expenses shall be paid by the said inspector and may be recovered from him in like manner.

Two openings to be made to each mine.

Section 2. It shall not be lawful, after six months from the passage of this act, for the owner or agent of any bituminous coal mine to employ any person at work within said coal mine, or permit any person to be in said coal mine for the purpose of working therein, unless they are in communication with at least two openings separated by natural strata of not less than one hundred and fifty feet in breadth, if the mine be worked by shaft or slope, and of not less than twenty-four feet if the mine be worked by drift: *Provided*, If the mine be worked by drift two openings inclusive of air shaft shall only be required, if the air shaft can be used for ingress or egress in case of emergency; and that not more than twenty persons shall be employed in the mine at any one time after the expiration of the six months until the second opening shall be reached and made available; and in case of furnace ventilation being used before the second opening is reached, the furnace shall not be placed within forty feet of the bottom of the shaft, and shall be well secured from danger from fire by brick or stone walls of sufficient thickness and the mine while being driven for making and perfecting a second opening; the owner or agent shall provide and maintain a metal tube from the top to the bottom of the slope or shaft, suitably adapted to the free passage of sound, through which conversation may be held between persons at the bottom and at the top of the shaft or slope, also the ordinary means of signaling to and from the top and bottom of the shaft or slope, and an approved safety catch and sufficient cover over head on every carriage used for lowering and hoisting persons; and the said owner or agent shall see that flanges or horns are attached to the sides of the drum of every machine that is used for lowering and hoisting persons in and out of the mine, and also that adequate brakes are attached thereto; the main link attached to the swivel of the wire rope shall be made of the best quality of iron, and shall be tested by weights or otherwise satisfactory to the inspector of mines of the district, and bridle chains shall be attached to the main link from the cross pieces of the carriage, and no single link chain shall be used for lowering or raising persons into or out of said mine, and not more than six persons shall be lowered or hoisted by the machinery at any one time; and only sober, competent and experienced engineers shall be employed.

Not more than 20 persons to be employed in mines until second opening is made.

Construction of furnaces.

Speaking tubes to be provided.

Also means of signaling.

Hoisting machines.

Qualifications of engineers.

One opening to be used for ingress and egress.

Section 3. When a second opening is made one opening shall be set apart exclusively for purposes of ingress or egress, and shall not be clogged or obstructed with machinery, pumps, or currents of heated air or steam; if the opening is a shaft it shall be fitted with safe and convenient stairs, at an angle of not more than sixty degrees descent, and with landings at easy and convenient distances; all water coming from the surface or out of the strata in the shaft shall be conducted by rings or otherwise, to be prevented from falling down the shaft so as to wet persons who are ascending and descending the stairway of the shaft; if the opening is a slope, it shall be provided with safe and available traveling ways.

Ventilation of mines.

Section 4. The owner or agent of every bituminous coal mine, whether shaft, slope or drift, shall, within six months after the passage of this act, provide, and thereafter maintain for every such mine ample means of ventilation, affording one hundred cubic feet per minute for each and every person employed in said mine, which shall be circulated around the main headings and cross headings to an extent that will dilute, carry off and render harmless the noxious gases generated therein; and all mines generating fire-damp shall be kept free of standing gas, and every working place shall be carefully examined every morning with a safety lamp by a competent person before any workmen are allowed to enter.

Mining boss to be employed.

Section 5. In order to better secure the proper ventilation of every coal mine, and promote the health and safety of the persons employed therein, the owner or agent shall employ a competent and practical inside overseer, to be called

His duties.

mining boss, who shall keep a careful watch over the ventilation apparatus, the air-ways, traveling-ways, pumps and pump timbers, and drainage, and shall see that as the miners advance their excavations, all loose coal, slate and rock overhead are carefully secured against falling in or upon the traveling-ways, and that sufficient timber is furnished of suitable lengths and sizes for the places where they are to be used, and placed in the working places of the miners; and it shall also be the duty of the mining boss to measure the air current at least once a week at the inlet and outlet and at or near the face of the heading, and keep a record of such measurements, and report the same to the inspector of his district once in every

Safety-lamps.

month; the safety lamps used for examining mines, or which may be used in working therein, shall be furnished by and

be the property of the owner of said mines, and shall be in the charge of the agent of such mine; and in all mines generating explosive gases the doors used in assisting or directing the ventilation of the mine shall be so hung and adjusted that they will close themselves, or be supplied with springs or pulleys so they cannot be left standing open, and bore-holes shall be kept not less than twelve feet in advance of the face of every working place, and when necessary on the sides, if the same is driven towards and in dangerous proximity to an abandoned mine or part of a mine suspected of containing inflammable gases, or which is inundated with water.

Doors.

Bore-holes.

Section 6. Any miners, workmen, or other persons, who shall intentionally injure any shaft, lamp, instrument, aircourse, or brattice, or obstruct or throw open air-ways, or carry lighted pipes or matches into places that are worked by safety lamps, or handle or disturb any part of the machinery, or open a door and not close it again, or enter any place of the mine against caution, or disobey any order given in carrying out the provisions of this act, or do any other act whereby the lives or the health of persons, or the security of the mines or the machinery is endangered, shall be guilty of a misdemeanor, and may be punished in the manner provided in the sixteenth section of this act; all machinery about mines shall be properly fenced off, and the top of each shaft, and the entrance of every abandoned slope and air or other shaft shall be securely fenced off; and there shall be cut in the side of every hoisting shaft, at the bottom thereof, a traveling-way sufficiently high and wide to enable persons to pass the shaft in going from one side of the mine to the other without passing over or under the cage or other hoisting apparatus.

Punishment for misdemeanor by workmen, &c.

Machinery, tops o shafts, &c., to be fenced off.

Traveling-way to be cut in sides of hoisting shafts.

Section 7. If any person, firm, or corporation is, or shall hereafter be seized in his or their own right of coal lands, and it shall not be practicable to comply with the requirements of this act in regard to drainage and ventilation, by means of openings on his or their own lands, and the same can be done by means of openings on adjacent lands, he or they may apply by petition to the court of quarter sessions of the proper county, after ten day's notice to the owner or owners, their agent or attorney, setting forth the facts, under oath or affirmation, particularly describing the place or places where such opening or openings can be made, and that he or they cannot agree with the owner or owners of the land as to the amount to be paid for the privilege of

Proceedings for making openings on adjoining lands

Appointment of viewers.

making such opening or openings; hereupon the said court shall appoint three disinterested and competent citizens of the county to view the grounds designated, and lay out from the point or points mentioned in such petition a passage or passages for air and water, not more than sixteen feet in diameter, by the shortest and most convenient route to the coal of such person, firm, or corporation, preferring in all cases an opening through the coal strata where the same is practicable; the said viewers shall at the same time assess the damages to be paid by the petitioner or petitioners to the owner or owners of such land for the privilege of making said openings, which damages shall be fully paid before such opening is made; it shall be the duty of said viewers to give notice by at least three written or printed hand-bills, posted on the premises at least five days prior to the time of meeting to attend to the duties of their appointment, setting forth distinctly the time, place and object of their meeting, and also to give personal notice to the parties, their agents and attorneys, where it can be done, and shall, within thirty days after their appointment, make report of their proceedings to said court, stating the amount of damages awarded, accompanied by a map or plan of said openings; and if no appeal be taken to said court within ten days after notice to the opposite party in interest of the filing thereof, it shall be marked confirmed by the clerk, and the petitioner or petitioners may proceed to make said opening or openings; the pay of the viewers and other costs shall be the same as in road cases, and shall be paid by the petitioner or petitioners.

Their duties

Report.

Costs.

Appointment of board of examiners.

Section 8. As soon as practicable after the passage of this act, the persons exercising the office of president judge of each of the several courts of common pleas in the Fifth, Tenth, and Fourth judicial districts, shall appoint one reputable miner of known experience and in practice at the time, (in the Fifth district the president judge of the court of common pleas number one shall make said appointment,) and the governor shall appoint two mining engineers of like repute and experience and practice at the time, who shall constitute a board of five examiners, whose duty it shall be to inquire into the character and qualification of candidates for the office of inspector of mines under the provisions of this act; the examiners first appointed in pursuance of this section shall meet in the city of Pittsburgh on the fifteenth day of May next, and after being duly organized, having taken and subscribed before any officer authorized to ad-

Duties of board.

minister the same the following oath, namely: "We the undersign do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for appointment as inspectors of bituminous coal mines to the best of our abilities, and that in recommending or rejecting said applicants we will be governed by the evidence of qualifications to fill the position under the law creating the same, and not by any consideration of political or other personal favors; that we will certify all whom we may find qualified according to the true intent and meaning of the act, and none others, to the best of our judgments," shall proceed to the examination of those who may represent themselves as candidates for said office; and they shall certify to the governor the names of all such applicants as they shall find competent to fill the office under the provisions of this act, which names, with the certificate and the oath of the examiners, shall be mailed to the secretary of the commonwealth to be filed in his office, and shall be valid when recommended by four of the examining board; the qualification of candidates for said office of inspector of mines to be inquired into and certified by said examiners, shall be as follows, namely: They shall be citizens of the United States, of temperate habits, of good repute as men of personal integrity, shall have attained the age of thirty years, and shall have had at least five years' experience in the workings of the bituminous coal mines of Pennsylvania, and upon the examination they shall give evidence of such theoretical as well as practical knowledge of the working of coal mines and noxious gases as will satisfy the examiners of their capability and fitness for the performance of the duties imposed upon inspectors of mines by the provisions of this act; the board of examiners shall also at their said meeting divide the bituminous coal counties of the State into three inspection districts, as nearly equal in regard to the labor to be performed as is possible, taking into consideration the number of mines and the extent of territory; at every subsequent calling of the board of examiners this division may be revised as experience may prove to be advisable; the board of examiners shall each receive five dollars per day and all necessary expenses, to be paid out of the state treasury upon the filing of the certificates of the examining board in the office of the secretary of the commonwealth, as hereinbefore provided the governor shall, from the names so certified appoint one person to be inspector of mines for each district as fixed by

Qualifications of inspectors.

Division of State into districts.

Compensation of examining board.

Governor to appoint inspectors.

Terms of office.

Vacancies.

Vacancies in the examining board.

New board to be appointed every four years.

Salaries of inspectors.

Instruments, chemical tests, and stationery.

Plans, &c., to be delivered to successors.

Inspectors to give bonds.

the examiners in pursuance of the act, whose commission shall be for four years, to be computed from the fifteenth of May next; as often as vacancies occur by death, resignation or otherwise, in said offices of inspectors of mines, the governor shall fill the same by appointment for the unexpired term from the names on file in the office of the secretary of the commonwealth, until the number shall be exhausted, and whenever this shall occur the governor shall cause the aforesaid board of examiners to meet, who shall examine persons that may present themselves for the vacant office of inspector in the same manner as herein provided, and the board of examiners shall certify to the governor one person, to be commissioned by him for the office of inspector for the unexpired term; and any vacancies that may occur in the examining board shall be filled in the district where the vacancy occurred; and every four years the governor shall appoint two mining engineers as before, and shall notify the persons exercising the office of president judge of the courts of common pleas of the judicial districts of the state containing bituminous coal mines, selecting them in such order as to allow each district an equal share of such appointments, each to appoint one miner, and the five so appointed shall constitute a new board of examiners, whose duties, term of service and compensation, and vacancies that may happen, shall be the same as those provided for by this section; and from the names that may be certified by them, the governor shall appoint the inspectors provided for in this act; nothing in this act shall be construed to prevent the re-appointment of any inspector of bituminous mines; the inspectors of mines shall receive for their services an annual salary of two thousand dollars, to be paid quarterly by the state treasurer, and they shall reside in the district for which they shall be appointed; each inspector is hereby authorized to procure such instruments and chemical tests, and stationery, from time to time, as may be necessary to the proper discharge of his duties under this act, at the expense of the state, which shall be paid by the state treasurer upon accounts duly certified by him and audited by the proper department of the state. All instruments, plans, book memoranda, notes, et cetera, pertaining to the office, shall be the property of the state, and shall be delivered to their successors in office.

Section 9. Each inspector of bituminous coal mines shall, before entering upon the discharge of his duties, give bond in the sum of five thousand dollars, with sureties to be ap-

proved by the president judge of the district in which he resides, conditioned for the faithful discharge of his duty, and take an oath (or affirmation) to discharge his duties impartially and with fidelity to the best of his knowledge and ability. And be sworn.

Section 10. No person who shall act as a manager or agent of any coal mine or as a mining engineer, or to be interested in operating a coal mine, shall at the same time act as an inspector of mines under this act. Disqualifications.

Section 11. For any injury to person or property occasioned by any violation of this act, or any wilful failure to comply with its provisions by any owner, lessee or operator of any coal mine or opening, a right of action against the party at fault shall accrue to the party injured for the direct damage sustained thereby; and in any case of loss of life by reason of such violation or wilful failure, a right of action against the party at fault shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they shall have sustained. Liability of owner, &c., for damages.

Section 12. The inspectors of bituminous coal mines shall each devote the whole of his time to the duties of his office; it shall be his duty to examine the mines in his district as often as possible to see that all the provisions of this act are observed and strictly carried out; and he shall make a record of all examination of mines, showing the condition in which he finds them, the number of mines in his district, the number of persons employed in and about each mine, the extent to which the law is obeyed, the progress made in the improvement sought to be secured by the passage of this act, the number of accidents and deaths resulting from injuries received in the mines, and all other facts of public interest concerning the condition and progress of mining in his district, which record shall, on or before the first Monday of each month, together with all matters and things furnished him in accordance with the provisions of this act, be filed in the office of the Secretary of Internal Affairs, to be by him recorded and included in the annual report of his department; he shall also from the time of his commission make strict and careful inquiry and examination into the condition and drainage of the mines. Duties of inspectors. Inspectors to keep a record. Report to Secretary of Internal Affairs.

Section 13. That the inspectors may be enabled to perform the duties herein imposed upon them, they shall have the right at all times to enter any bituminous coal mine to make examination or obtain information; they shall notify Inspectors may enter mines at all times.

To notify owners, &c., of violations of act.

the owners, lessees or agents immediately of the discovery of any violations of this act and of the penalty imposed thereby for such violation, and in case of such notice being

And institute proceedings against them.

disregarded for the space of ten days they shall institute a prosecution against the owner, owners, agent or lessee of the mine, under the provisions of section sixteen of this act; in any case however where, in the judgment of the inspector of either district, delay may jeopardize life or limb, he shall at once notify the inspectors of the other districts,

All the inspectors to examine a mine in certain cases.

whereupon they shall at once proceed to the mine or colliery where the danger exists and examine into the matter, and if after full investigation thereof they shall be agreed

May apply to court for injunction.

in the opinion that there is immediate danger, they shall apply in the name of the commonwealth to the court of common pleas of the county in which the mine may be located, for an injunction to suspend all work in and about such

Court to restrain working of mine.

mine or colliery; whereupon said court, if the cause appear to be sufficient, after hearing the parties and their evidence as in like cases, shall issue their writ to restrain the working of said mine or colliery until all cause of danger is re-

Costs.

moved; and the costs of said proceedings, including the charges of attorney prosecuting said application, shall be borne by the owner of the mine or colliery: *Provided*, That no fee exceeding the sum of twenty-five dollars shall be taxed in any one case for the attorney prosecuting such case: *Provided further*, That if said court shall find the cause not sufficient, then the case shall be dismissed, and the cost shall be borne by the inspector instituting the proceeding, or the county, in the discretion of the court.

Reports of accidents to be made.

Section 14. Whenever by reason of any explosion or other accident in any bituminous coal mine or the machinery connected therewith, loss of life or serious personal injury shall occur, it shall be the duty of the person having charge of such mine or colliery to give notice thereof forthwith to the inspector of the district, and if any person is

Notice to coroner.

killed thereby to the coroner of the county, who shall give

Duties of inspectors.

due notice of the inquest to be held; it shall be the duty of the inspector upon being notified as herein provided, to immediately repair to the scene of the accident and make such suggestions as may appear necessary to secure the future safety of the men; and if the results of the explosion do not require an investigation by the coroner he shall proceed to investigate and ascertain the cause of the explosion or accident, and make a record thereof, which he shall file

Their powers.

as provided for; and to enable him to make the investiga-

tion, he shall have power to compel the attendance of persons to testify, and to administer oaths or affirmations; the cost of such investigation shall be paid by the county in which the accident occurred, in the same manner as costs of inquests held by the coroners or justices of the peace are paid.

Costs of investigations.

Section 15. The court of common pleas of any county in the proper district, upon a petition signed by not less than fifteen reputable citizens, not less than five of whom shall be miners, owners or lessees of mines, and with the affidavit of one or more of said petitioners attached, setting forth that any inspector of mines neglects his duties or is incompetent, or that he is guilty of a malfeasance in office, shall issue a citation in the name of the commonwealth to the said inspector to appear, on not less than fifteen days' notice, upon a day fixed before said court, at which time the court shall proceed to inquire into and investigate the allegations of the petitioners; if the court find that the said inspector is neglectful of his duties or is incompetent to perform the duties of his office, or that he is guilty of malfeasance in office, the court shall certify the same to the governor, who shall declare the office of said inspector vacant, and proceed in compliance with the provisions of this act to supply the vacancy; the costs of said investigation shall, if the charges are sustained, be imposed on the inspector; but if the charges are not sustained they shall be imposed upon the petitioners.

Inspectors to be liable to removal.

Section 16. The neglect or refusal to perform the duties required to be performed by any section of this act by the parties therein required to perform them, or the violation of any of the provisions or requirements hereof, shall be deemed a misdemeanor, and shall, upon conviction, be punished by fine of not less than two hundred dollars nor not exceeding five hundred dollars, at the discretion of the court, and all penalties recovered under this act shall be paid into the treasury of the state.

Penalties for neglect of duties or violating act.

Section 17. The inspectors shall exercise a sound discretion in the enforcement of the provisions of this act; and should the operator or owner be dissatisfied with any decision at which the inspector may arrive, it shall and may be lawful for such operator or owner to apply by petition to the court of quarter sessions of the county wherein such mine is located, and said court shall thereupon appoint three reputable competent and disinterested persons, whose duty it shall be to forthwith examine such mines, and hear the

Proceedings in cases of dissatisfaction with decisions of inspectors.

proofs and allegations of the inspectors and operator or owner, and make such report under oath to court of the facts as they exist, together with their opinion thereon; and if said report sustains the decisions of the inspector, then the party making application to court shall pay the costs of such proceeding, and if the report is against such decision then the inspector shall pay the costs, unless the court order otherwise; the report of the said board shall become absolute unless exceptions thereto shall be filed within ten days after notice of the filing thereof to the owner, operator or inspector, and if exceptions are filed the court shall hear and determine the same, and the decision shall be final and conclusive.

Act not to apply to certain mines.

Section 18. The provisions of this act shall not apply to any mine where ten men or a less number are employed, or to any mine which does not generate fire damp, black damp, or other dangerous or noxious gases.

Repeal.

Section 19. All laws or parts of laws inconsistent with any of the provisions of this act are hereby repealed.

APPROVED, April 18th, 1877.

AN ACT

To amend an act, entitled "An act to provide the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania.

Repeal of certain provisions.

Section 1. Be it enacted, &c., That the last clause of the eighteenth section of the act of general assembly, entitled "An act to provide the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania, approved April 18th, 1877, after the word "employed" in the second line of said section, which is as follows: "Or to any mine which does not generate fire-damp, black-damp, or other dangerous or noxious gases," is hereby repealed.

APPROVED, May 25th, 1878.

AN ACT

To amend an act, entitled "An act to provide the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania," approved the eighteenth day of April, Anno Domini eighteen hundred and seventy-seven.

Section eight of act of 18th April, 1877, amended.

Section 1. Be it enacted &c., That the eight section of the act of general assembly, entitled "An act to provide the means for securing the health safety of persons employed in the bituminous coal mines of Pennsylvania," approved the eighteenth day of April, Anno Domini eighteen hundred and seventy-seven, be and the same is hereby amended as follows: In the sentence "The board of examiners shall also at their said meeting divide the bituminous coal counties of the state into three inspection districts, as nearly equal in regard to the labor to be performed as is possible, taking into consideration the number of mines and the extent of territory," strike out and repeal the words "said" and "three" and insert in lieu thereof, respectfully, "next" and "four" so that said sentence will read: The board of examiners shall also at their next meeting divide the bituminous coal counties of the State into four inspection districts, as nearly equal in regard to the labor to be performed as is possible, taking into consideration the number of mines and the extent of territory."

APPROVED, June 3, 1881.

AN ACT

To protect children from neglect and cruelty, and relating to their employment, protection and adoption.

Cruel treatment of children, to be punished.

Section 1. Be it enacted, &c., That any person whatsoever who shall cruelly ill-treat, abuse or inflict unnecessary cruel punishment upon any infant or minor child, and any person having the care, custody or control of any minor child, who shall willfully abandon or neglect the same, shall be guilty of a misdemeanor, and upon conviction thereof before any justice of the peace, magistrate or court of record, shall be fined by such justice, magistrate or court of record, not less than ten dollars nor more than fifty dollars for each offense.

Punishment for employing minors at certain vocations.

Section 2. Any person having the care, custody or control of any minor child under the age of fifteen years, who shall in any manner sell, apprentice, give away or otherwise dispose of such child, and any person who shall take, receive

or employ such child for the vocation or occupation of rope or wire walking, or as an acrobat, gymnast, contortionist or rider, and any person who having the care, custody or control of any minor child whatsoever, shall sell, apprentice, give away or otherwise dispose of such child, or who shall take, receive or employ such child, for any obscene, indecent or illegal exhibition or vocation, or any vocation injurious to the health or dangerous to the life or limb of such child engaged therein, or for the purpose of prostitution, and any person who shall retain, harbor or employ any minor child in or about any assignation house or brothel, or in any place where any obscene, indecent or illegal exhibition takes place, shall be guilty of a misdemeanor, and upon conviction thereof before any justice of the peace, magistrate or court of record, shall be fined not less than fifty dollars nor more than one hundred dollars for each offense.

Or retaining them in brothels.

For hiring them for purposes of mendicity

Section 3. Any person having the care, custody or control, lawful or unlawful, for any minor child under the age of eighteen years, who shall use such minor or apprentice, give away, let out, hire or otherwise dispose of such minor, to any person, for the purpose of singing, playing on musical instruments, begging, or for any mendicant business whatsoever, in the streets, roads or other highways of this Commonwealth, and whosoever shall take, receive, hire, employ, use or have in custody, any such minor, for the vocation, occupation, calling, service or purpose of singing, playing upon musical instruments or begging, upon the streets, roads or other highways of the Commonwealth, or for any mendicant business whatever, shall be guilty of a misdemeanor, and upon conviction thereof in the manner provided in the first section of this act, shall be fined not less than fifty dollars nor more than one hundred dollars.

For employing them in dance-houses or saloons where liquors sold.

Section 4. Any person having the care, custody or control of any minor child under the age of fifteen years, who shall in any manner sell, apprentice, give away or permit such child to sing, dance, act, or in any manner exhibit in any dance-house whatever, or in any concert-saloon, theatre or place of entertainment, where wines or spirituous or malt liquors are sold or given away, or with which any place for the sale of wines or spirituous or malt liquors is directly or indirectly connected by any passage-way or entrance, and and any proprietor of any dance-house whatever, or any such concert-saloon, theatre or place of entertainment, so employing any such child, shall be guilty of a misdemeanor, and upon conviction thereof in the manner provided in the first

section of this act, shall be fined not less than fifty dollars nor more than one hundred dollars for each offense.

For hiring them to work under ground.

Section 5. Any person who shall take, receive, hire, or employ, any child under twelve years of age in any underground works or mine, or like place whatsoever, shall be guilty of a misdemeanor, and upon conviction thereof in the manner provided in the first section of this act, shall be fined not less than ten dollars nor more than fifty dollars.

Proceedings for violation of act.

Section 6. Whenever any person shall, before a magistrate or justice of the peace, make oath or affirmation that the affiant believes that this act has been or is being violated in any place or house, such justice or magistrate shall forthwith issue a warrant to a constable or other authorized officer, to enter such place or house and investigate the same; and such person may arrest, or cause to be arrested, all offenders, and bring them before any justice, magistrate, or court of record, for a hearing of the case; and it shall be the duty of all constables and policemen to aid in bringing all such offenders before said authorities for a hearing.

Orphans' court may appoint guardians.

Section 7. Whenever any person having the custody or control of any minor, shall be convicted of a violation of any of the provisions of this act, it shall be lawful for any person to apply to the orphans' court of the county wherein the offense has been committed, for the appointment of a proper guardian for the person of such minor; and the said court may, in its discretion, make such appointment, having due regard in the selection of a guardian to the religious persuasion of the parent or former guardian, or it may place such child in an asylum or home for children, with the powers of a guardian of the person as may be most expedient: *Provided however*, That the children of Roman Catholic parents shall be placed in asylums under the control and care of that denomination; and the said court may order the parent to pay such a reasonable sum towards the maintenance of such child, and at such times and in such amounts, as the said court may see fit; and such courts may at any subsequent time, upon being satisfied that the parent has become a fit person to resume the custody of said minor, and upon reasonable security, to be fixed by the court, being given for the faithful observance of the provisions of this act, remand such minor to the custody of such parent, subject, nevertheless, to the obligation of any indentures or legal engagements already entered into on behalf of said minor by his or her guardian.

And order payment of maintenance.

Remand to custody of parents, if competent to care for children.

Section 8. Any duly organized or incorporated humane

Humane societies may have persons commissioned to make arrests.

society, having for one of its objects the protection of children from cruelty, may offer any agents or officers employed by them to the mayor of any city of the first, second, third, fourth, or fifth class, for the purpose of being commissioned to act as police officers through the limits of said city, for the purpose of arresting all the offenders against this act, or any of the provisions thereof; whereupon the mayor in such city shall, if such persons are proper and discreet persons, commission them to act as such police officers, with all the rights and powers appertaining thereto; but no such city shall be liable in any way for the salary or wages of such officers, or for any expense whatever in relation thereto, except for the detention of prisoners; and in any district or township not incorporated, such humane society may offer similarly qualified persons to the court of common pleas of the county, whereupon such court, or any judge thereof, shall, if they be fit persons, commission such persons to act as constables, with power to arrest all offenders against this act, or any provisions thereof; but no township, borough, or county, shall in anywise be liable for the salary or wages of any such officer, or for any expense in relation thereto, except for the detention of prisoners; all persons thus qualified under this section, shall be deemed to be constables and authorized officers within the meaning of section six of this act; and the keepers of jails or lock-ups, or station-houses, in any of said counties, are required to receive all persons arrested by such policemen or constables.

When minors may be committed to care of such societies.

Section 9. Whenever any person having the care, custody, or control, of any minor child, shall be convicted of an assault, or an assault and battery, upon such child, or of any violation of the provisions of this act, it shall be lawful for the justice of the peace, magistrate, or court, before whom such conviction has taken place, or where the parents or proper guardian of any child cannot be found, it shall be lawful for any magistrate or court to commit such child to the care and custody of any duly authorized or incorporated humane society, having for one of its objects the protection of children from cruelty; and such society shall thereupon have all the rights of a guardian of the person of such child, but such society may, at any time, apply to the orphans' court of the proper county for the appointment of a guardian of the person, or the commitment of such child to an asylum or home for children, as provided in the seventh section of this act.

Section 10. Whenever it shall be made to appear to the

satisfaction of the court of common pleas of any county that any minor child has been deserted by its parents or surviving parent, and that it has no legal guardian, it shall be lawful for any person desirous of adopting the said child to adopt the same, in the manner now provided by law in the case of the death of the parents. May be adopted when deserted by parents

Section 11. In default of payment of the fine or penalty imposed under any of the sections of this act, together with the costs of the proceedings, then said justice of the peace, magistrate, or court of record, shall commit said offender to the county prison, there to remain for not less than twenty nor more than ninety days, or until discharged by due course of law: *Provided*, That when the fine imposed exceeds the sum of ten dollars, the party complained against may appeal from the decision of said justice of the peace or magistrate to the court of quarter sessions, upon his entering bail in the nature of a recognizance in the usual manner for his appearance at said court, when the offense shall be prosecuted in the same manner as is now directed by law in other cases of misdemeanor; if in lieu of deciding the cause, such justice of the peace or magistrate shall bind over or commit such person to appear at the court of quarter sessions, or if such person shall appear as aforesaid, or upon such binding over or commitment, appear before the said court, and be there convicted of such misdemeanor, he shall be sentenced to pay a fine not exceeding two hundred dollars, payable as aforesaid, or undergo an imprisonment not exceeding one year, or both, at the discretion of the court. Commitment to prison for non-payment of fines. Appeals to court of quarter sessions. Punishment on conviction before court.

Section 12. Whenever the parents or proper guardian of any infant unable to support itself, have been convicted of any of the offenses enumerated in this act, or are dead or cannot be found, and there is no other person legally responsible for the maintenance and support of such child, willing to assume such support, or to be found within the county, any magistrate or court of record of the county in which such child may be found, may commit such child to the care and custody of the guardians of the poor of the said county, but nothing herein contained shall exempt any person from the duty of maintaining and supporting such child as now imposed by law. When minors to be committed to custody of guardians of poor.

Section 13. That the act, entitled "An act relating to the cruelty of children in this commonwealth," approved the twenty-fourth day of May, Anno Domini one thousand eight hundred and seventy-eight, be and the same is hereby repealed. Repeal

APPROVED, the 11th day of June, A. D. 1879.

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